

The scriptural code of health, with observations on the Mosaic prohibitions, and on the principles and benefits of the medicated vapour bath / By Charles Whitlaw.

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Publication/Creation

London : [The author], 1838.

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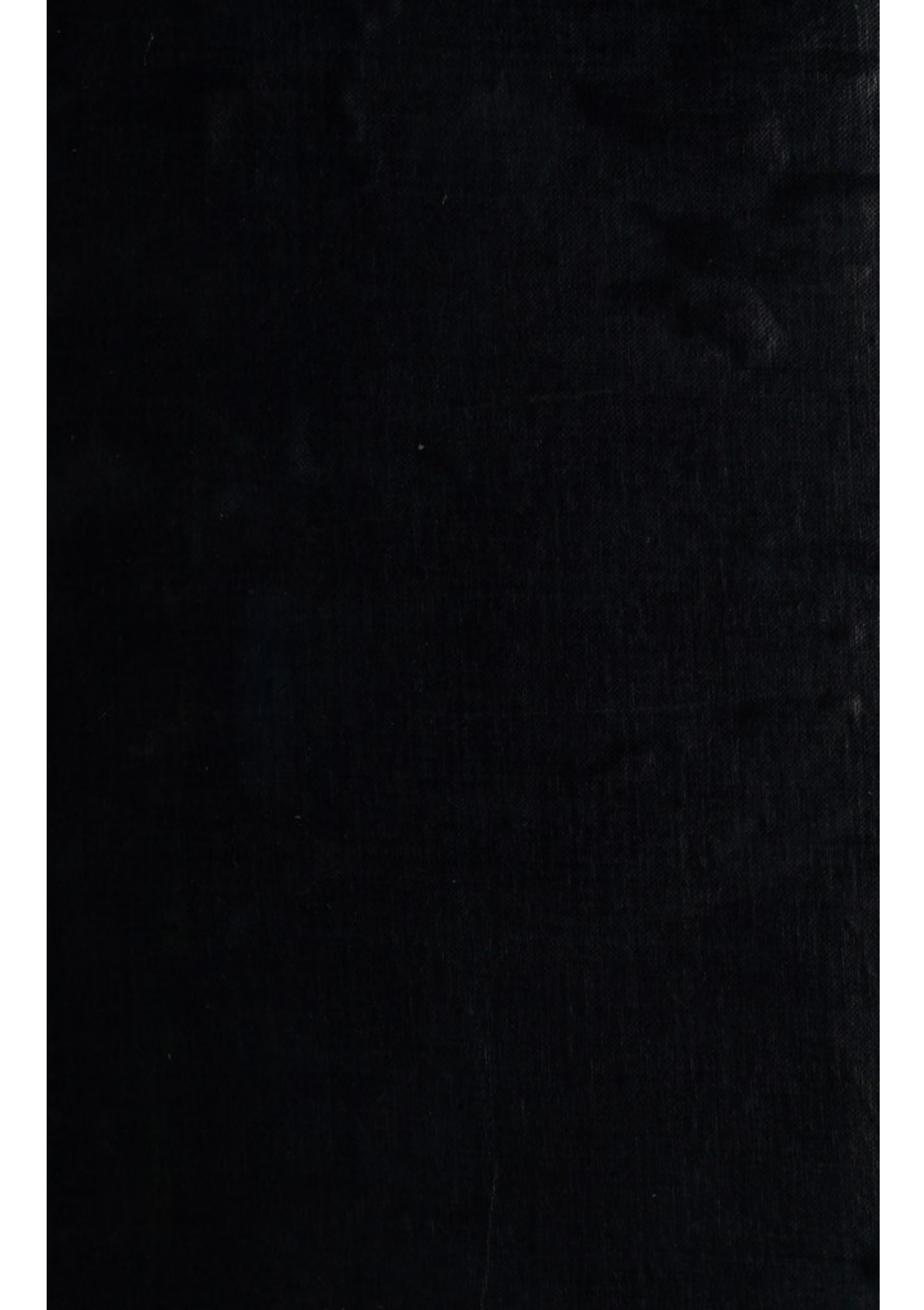
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CODE OF HEALTH
WITH CERTAIN
THE MORAL PROHIBITIONS

PRINCIPLES AND PRACTICE
MEDICAL REPORT

BY THE AUTHOR

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THE
SCRIPTURAL
CODE OF HEALTH,
WITH OBSERVATIONS
ON
THE MOSAIC PROHIBITIONS,
AND ON THE
PRINCIPLES AND BENEFITS
OF THE
MEDICATED VAPOUR BATH.

By CHARLES WHITLAW.

LONDON:
PUBLISHED BY THE AUTHOR,
30, ARGYLL STREET, REGENT STREET,
AND SOLD BY ALL THE BOOKSELLERS.

1838.

PRINTED BY F. WARR,
RED LION PASSAGE, HOLBORN.



PREFACE.

AMONGST the numerous accounts of the creation of the world, none is so worthy of notice, as that of Linnæus's, as he followed the views of Moses, Thales, and Seneca, with regard to his Mineral, Animal and Vegetable Kingdoms, and his lucid description and classification of the various productions in the three Kingdoms of Nature far transcends any other work on the subject. This will I hope be a sufficient apology for my re-printing the prefaces to his three works, trusting that the perusal of these prefatory remarks may induce enquiries after truth, and lead to the investigation of the whole of his works. To rear a super-structure on the foundation he has laid can never fail of producing health and happiness.

We have the authority of Scripture for asserting that the proper aliment of man is vegetables, "And God said, behold I have given you every herb, bearing seed, which is upon the face of all the earth, and every tree in which is the fruit of a tree yielding seed; to you it shall be for meat." This most conclusive evidence needs no comment; and as disease is not mentioned as a part of the curse, we have reason to believe that the antediluvians were strangers to this evil. Such a phenomenon as disease could scarcely exist among a people who lived entirely on vegetable food raised from primitive earth, consequently all the individuals made mention of in that period of the world, are said to have died of old age; whereas since the days of Noah, when mankind were permitted to eat animal food, such an occurrence as a man dying of old age, or a natural decay of the bodily functions does not occur probably once in half a century.

The principles of diet, as regards health and disease, have been the origin of as much controversy among physicians as the great doctrine of fever; and notwithstanding many ingenious works have been published on the subject by men of eminence in the profession, yet I defy any person, after perusing the whole of their works, to say what regimen is calculated to prevent or cure disease. After having reviewed many writings on the principles of diet, without any satisfaction to myself, I was led to enquire into the laws of life and health contained in the sacred records, where truth in all its purity may be found. I have but just touched on the different subjects contained in the Mosaic law, the limits of this small work not allowing me to enlarge on them. Sufficient has I trust, however, been said to justify the superior policy of the Jewish and Roman method of agriculture, which furnishes a fine example for the British nation to follow.

With respect to the composition of this work, I am aware that inaccuracies may be met with; and that many might have been prevented if I could have commanded sufficient time to superintend its more perfect revision. As I have not studied elegance of style, I shall not blame those who may detect a too familiar mode of expression, which cannot injure either the object or merit of the work. I cannot boast of a classical education, and therefore lay no claim to the embellishments which it imparts. My reading has been chiefly confined to the ever-living book of God; to me the book of nature has furnished an ample field of enquiry, and in which I have found a sufficiency for the sustenance of my body in health, and remedies for the relief and cure of all my pains and diseases. Twenty years of my life were spent in collecting and examining the structure of plants,—in searching into the laws by which they are governed, and the purposes for which they are created: in that all-neglected volume of inspiration, without the study of which man can have but an imperfect conception of God, as the creator of the universe, and in which I have found unceasing satisfaction and delight, and

has left no inquietude behind; even the “meanest flower that scents the gale” has often called forth my admiration and gratitude towards that Being who hath granted me all this indulgence of seeing, in the formation of every plant, the marks of Almighty power and consummate wisdom. In his works there is no *errata*,—the rose which blossomed in the bowers of paradise, is still blooming far and wide over the surface of the earth; its beauty unimpaired, its odour unexhausted, and its healing virtues undiminished.

In the corrupt vegetable and animal kingdoms, also, we trace the seeds of moral depravity and bodily disease; for however men may cavil, I am bold to assert that there, and there alone, are to be found the laws of life and health, and of moral good and evil; and the man who denies this is ignorant of the nature of his being, and of the laws by which it is governed.

It is with the best intentions I commit this treatise into the hands of the public: if it is instrumental in promoting the good of my species I am abundantly rewarded; therefore, whatever may be said against the doctrines I have endeavoured to establish, in this I shall rest satisfied and assured, that what I have written is founded on truth, and will stand secure when the hand which has recorded it is withered in the dust.

I have to return my most grateful thanks to the respectable members of the medical profession who in defiance of medical *etiquette*, have come forward boldly and adopted my views in the treatment of disease, and have shown themselves the friends of truth more than the friends of Plato.

To Mr. Rankin of Hastings, Mr. Winzar of Salisbury, Mr. Lewis of Manchester, Mr. Coleman of Wolverhampton, Mr. Mackness of Northampton, Mr. MacBean of Hanley, Dr. Robinson and Mr. Bedwell at Cheltenham, Dr. Godfrey of Liverpool, and Dr. Purday of Edinburgh, Surgeons, as well as Dr. Fairbanks of Behie, in the Brazils, I am indebted for their candour and liberality in having established my baths in the face of the most deter-

mined opposition from those medical men with whom they had formerly acted in concert.

I likewise take this opportunity of acknowledging the philanthropy of the clergy of the established church, who in many instances have shewn the most disinterested zeal for the bodily welfare of the poor of their respective parishes, in purchasing my medicines at a great expense to themselves, and administering them without fee or reward to the wretched inmates of workhouses, who had been driven from hospitals, seeking in vain for relief: also to the dissenting ministers of the various denominations, who were my earliest patrons, and who have steadily supported me through good and evil report, and have established my baths in many towns and cities for the benefit of the afflicted of their congregations, among whom I may mention the Rev. R. Elliott of Devizes, the Rev. R. Cecil of Turvey, and the Rev. I. Crump of Weymouth.

Lastly, my unfeigned thanks are due to the medical gentlemen of the United States of America, where my system has almost become universal, having been adopted by upwards of fifty physicians, among whom I may mention in particular the name of Dr. Ireland, who took his stand in favour of my baths and practice when assailed and denounced by the whole college of physicians; and who, when threatened by them with excommunication for daring to countenance me and my system, declared, "that sooner than part with the bath as an auxiliary in the cure of diseases, he would forego their private friendship, and all the medical knowledge he had previously acquired."

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ON THE MOSAIC PROHIBITIONS.

EARLY in life I was advised by Mr. Innes the worthy clergyman of my native parish, Yester in the county of East Lothian, Scotland, to adopt my father's profession as an agriculturist. The new views of that truly distinguished patriot, Sir John Sinclair, were then taking deep root in the county, and the best works on agriculture and horticulture were put into my hands; but my parents and the clergyman were unceasing in their endeavours, to impress on my youthful mind the great importance of studying the book of God. A most fortunate circumstance occurred, that made an impression on my mind which will never be effaced. A writer in one of our popular journals undertook to prove the Bible was not true, and pointed out, as he supposed, a direct falsehood; he observed, that the territory of the Jews was not larger than England and Wales, and therefore insufficient for yielding produce enough to support upwards of 1,650,000 men capable of bearing arms, which, including the exemptions was, according to the reviewer the amount of the calculation made by Joab at David's command. Various divines defended the Bible upon supernatural grounds which were hardly satisfactory, until Dr. James Anderson of London, took the sacred cause in hand and proved its authenticity by numerous texts of Scripture, particularly in reference to the building of Solomon's temple. For notwithstanding the immense quantity of corn, peas, wine, oil, and the number of bullocks and other animals exchanged for the materials to build the temple, the support of the numerous workmen at home and abroad, besides the destruction of so many of the cattle in the daily sacrifice, yet there was at that time a superabundance of the necessaries and luxuries of life. He quoted our Lord's parable of the sower, whose seed fell some on good ground yielding thirty, sixty, and a hundred fold, and proved from profane history, that, by introducing a bad system of

agriculture their territory yielded not more than half what it did at the time Joab numbered the people. The Doctor was of opinion that the arable land in Britain and Ireland, might by moderate industry produce sufficient to support in affluence five-hundred people to every square mile. I fully agree with him. The county of East Lothian will at this time maintain more, (I am fully borne out in my opinion by Sir Arthur Young, Sir John Sinclair, and others) and am satisfied that Ireland by proper cultivation might yield sufficient food for the present population of the three kingdoms. So great is the mismanagement in that distracted country, that the people are frequently on the verge of famine.

At Edinburgh I studied horticulture, landscape gardening, and botany, and for two years pursued them with assiduous attention. Forty-three years ago I went to New York, where an opportunity occurred which fully and practically realized the grand conception I had formed of the Mosaic law. Being employed to superintend the laying out of a garden, on York Island, where fort ditches were thrown up during the American war; on levelling the ground I found that a considerable quantity of wood ashes, lime, and dung, had been turned down in separate sections of the work, and never were there more perfect particles of earth; I saved each sort by itself, as if it had been gold. To give the reader some idea of the fertilizing quality of this mould, an acre of poor worn out land was dug down, shallow trenches were made for sowing peas, pails full of the earth mingled with lime were thrown over them, and full three times the quantity usually grown on the island was produced, and superior to any I ever tasted. There was generally a triple increase of Indian corn, and all sorts of fruits and vegetables, and the quality superior, which fully confirmed me in the belief of that infinite wisdom which dictated the Mosaic law. Although then but a youth, my knowledge drew around me philosophic men from every country in Europe, which caused the interchange of much practical information. I was induced by them to travel, after having laid out the place above referred to, and forward the vegetable productions to the various countries of Europe, which I did for eighteen years.

Constant travelling over the United States, Canada, the Spanish Maine, the British and Spanish Colonies, gave me a fine opportunity of studying the physical evils attending the prohibitions of the Mosaic law, and often have I dwelt with the most sincere pleasure when examining the extensive and splendid proofs of the Mosaic account of the Creation. Sharon Turner's work, "The World before the Flood" ought to be universally read, as it contains a mass of valuable information on that subject.

I will now turn to the Sacred Volume and make a few remarks on the creation of the world, and then offer my observations on the prohibitions. I would not have entered into a theologico-metaphysical account, but it is necessary to explain my practical and physical definition of the subject. Genesis chap. i. and verse 1st. "In the beginning God created the heavens and the earth." How hard it is for natural reason to discover a creation before revealed, or being revealed, to believe it. The strange and absurd opinions of the old philosophers, and the infidelity of modern atheists is too sad a demonstration. To look back upon the world in its original state and infancy, and, as it were, to view nature in her cradle, to trace the out goings of the Ancient of days in the first instance, and specimen of his creative power, is a research too great for mortal inquiry, and we might continue our scrutiny to the end of the world before natural reason would be able to find out when or how it begun.

On taking the sacred history of the world into consideration, we shall find, that it will never be properly understood if its creation by the Deity be excluded from our view, neither will human history appear a rational or connected system, nor be found in harmony with the laws of the material universe. This has been the stumbling block of all our modern philosophers, in not acknowledging that supreme power in all things, but vainly endeavouring to account for every phenomena by some fortuitous occurrence. In this boasted age of light, we are morally and physically speaking, merging into impenetrable darkness, for the doctrines promulgated in the schools treat of effect without a cause, and thus lead the people further into error, as our Lord observes, "the leaders of this people causeth them to err, and they

that are led of them are destroyed." The whole works of the Creator and Governor of the Universe, testify of the great first cause. Not contented with the history and character the Deity has given of himself, in the works of creation and providence, every world maker, thinks he is capable of offering to mankind a better; and deviating from the path of rectitude presents after most elaborate efforts to supersede it, nothing but butterfly fancies, which amuse for a moment and then expire, leaving only vague assertions and individual chimeras, calculated alone to throw a gloom over the understanding and restrain the noblest faculty of the soul. Nothing tends more to consign a writer to oblivion or to the future depreciation, which is worse, than to depart from the great truths of nature and to set up idols and absurdities in their place; the light which should have been as a lamp to guide the follower in the paths of truth, becomes obscured, and the understanding which should be eyes to the blind faculty of the will, is blind also. Let him, who would have a clear ocular demonstration of this, reflect upon the numerous publications of strange, senseless, wicked, and absurd opinions that are in circulation, to the disgrace of reason and the unanswerable reproach of broken intellects, defaced with sins and crimes. This deplorable condition of the philosophy of human nature is strikingly and eloquently described by Mons. de Bonald, introduced by Mr. Dugald Stewart in his preliminary dissertation to the *Encyclopedia Britannica*, "Diversity of doctrine" says he "has increased from age to age with the number of masters, and with the progress of knowledge, and Europe, which at present possesses libraries filled with philosophical works and which reckons almost as many philosophers as writers, is poor in the midst of so much wealth, and uncertain, with the aid of all its guides, which road it should follow. Europe, the centre and focus of the lights of the world, has yet its philosophy only in expectation."

The discourse of Epicurus concerning the origin of the world is so fabulous and ridiculously merry, that we may well judge the design of his philosophy to have been amusement, not instruction.

Aristotle held, that it streamed by connatural result and emanation from God, the infinite and eternal mind, as the

light issues from the sun, so that there was no instance of duration assignable to God's eternal existence, in which the world did not also co-exist. Dr. Darwin supposed that the world was engendered in the sun like an egg and exploded when brought to maturity. In 1816 a phenomenon took place in and on the sun which seemed to favour his theory. I was in Upper Canada at the time, and had a favourable opportunity of observing it through a telescope. A spot appeared about the size of a grape shot compared to a forty-four pounder, projecting full half way out of the sun, about half its volume, it appeared on the under side of the sun, E.N.E. like a spectacle eye, it had a glistening and luminous appearance, surrounded by an opaque ring and shewed that the sun revolved on its axis, once in twenty-seven days and a few hours. The rays of the sun were obscured from the earth, and a road from sixteen to twenty miles broad was made through the country and destroyed all vegetation by a hard black frost. It was visible in April, May, June, July, and August, and when last seen was scarcely attached to the sun. There was no rain from the time the snow was off the ground, which was from the first of April, until August. It prevented vernal and summer herbs, shrubs and trees from flowering, particularly where the frost touched them; they principally flowered in Autumn. The foliage and inflorescence was imperfect, the pistillum and stamina were the only permanent parts. For fourteen days I rose long before the sun gilded the horizon, to feast my eyes and imagination by observing the pellicles of honey dew fall, presenting the most brilliant and diversified colours, but when the sun arose, the pellicles streaming from leaf to leaf, and branch to branch were beautiful beyond description. The large balls of gelatine condensed by the frost, fell like shooting stars, and broke to pieces; I collected a large quantity and laid it in the sun, when it soon evaporated. After the great heat in New York in October, 1833, the sudden cold caused similar phenomena. The absurd speculations respecting it in the public journals were highly amusing, and I regret not having sent some of the contorted specimens to the natural order of innovators in Paris, who not only attempt to impugn the revealed word of God, and establish their principles, but endeavour even to

make nature subservient to their views. It is the decree of the supreme Governor of the Universe, to separate the clean from the unclean, the poisonous from the farinaceous, and as a test of man's obedience to his commands, He has permitted evil in connection with moral good also to exist ever since the fall of man. Linnæus was anxious that there should be such a division, and established the most important line of demarcation, taking cause and effect for his guide. He has raised a rampart of truth around the animal, mineral, and vegetable worlds, which neither envy can blast, nor time destroy. The French who have taken the lead and those of other nations who have followed their precepts, will not allow of a supreme Creator and upholder of the Universe, but declare the world was brought into existence from a fortuitous concourse of atoms, and that all of them jointly explode a creation.

They have jumbled together in one heterogeneous mass the poisonous and farinaceous plants, and call the *orders* natural, by which the bodies of animals become diseased, and from the use of them the bodies of mankind.

After writing the foregoing pages, collected from my own observations, I must refer to the works of my great master Linnæus, in order to give a more correct view of the creation, disposition and preservation of all things, according to the divine decree, for after perusing the opinions of all writers that have come under my notice, which has not been limited, I can conscientiously declare, that the bible and Linnæus's writings are the only text books, which can with justice be appealed to, in order to lay a sure foundation upon which a superstructure can be built, calculated to teach and promote the well being of man both for time and eternity. Whatever I have found valuable in other works, has been for the most part copied from them without acknowledging it, and but too frequently the great truths have been mutilated and perverted in order to deceive.

Washington Irving's description of the art of book-making, in the similitude of a dream at the British Museum, affords a good idea of the depredations made by the moderns on the original authors, and presents an amusing scene of the conflict between the two parties, the one for the restoration of his mutilated members, the other in defence of his stolen

property. I wish that some, such as the writers of old, would again figure in the world, and brush away all the foolish, wicked, and absurd notions that have hitherto overclouded the temples of our reason, and demonstrate the truth arrayed in all its natural simplicity.

When science was in a rude chaotic state, Linnæus was born, and destined to withdraw the veil which had previously obscured the beauties of nature, and proclaim her bounties to a benighted world. To give my readers a taste for the most pleasing, instructing and beneficial studies that can occupy the mind, I shall copy the introduction to his work on the creation and formation of the materials of which the world is composed, and hope it will be the means of engendering a desire for the study of nature, in the place of those works of fiction and falsehood which are debasing the minds of the rising generation.

“ MINERALS.

“ That all matter was primordially in a state of fluidity, and that the earth arose from the bosom of the waters, we have the testimony of Moses, Thales, and Seneca. And it is manifest, that the sea enveloping the chaotic nucleus, produced by slow and gradual means the continent, which by continually exhaling its dews into clouds, is regularly moistened by ætherial, rectified, deciduous showers. Genuine remains of the general deluge, as far as I have investigated, I have not found ; much less the adamitic earth ; but I have every where seen earths formed by the dereliction or deposition of waters, and in these the remains of a long and gradual lapse of ages.

The WATER of the ocean, frigid, passive, concipient, every where fœcundated by a dry calescent active generating air is observed teeming with a double offspring :

A *saline* male, soluble, acrid, clear, crystalline.

A *terrene* female, fixed, viscid, opaque, attractorial.

This water, moreover, affords nourishment to two other of its offsprings, Animals and Vegetables, continued in their kind by a regular catenation of seeds, and these both are reduced into earth by a perennial circle of action.

SALTS are sapid, many-sided, diaphanous, soluble into infinite minute particles always retaining their original form, and concreting again and again into larger masses of like uniform shape. These, by crystallization in and from various earths, generate various stones.

Nitre, which is aerial, and which by obduction augments sand.

Muria, which is marine, and which by corrosion attracts clay.

Natrum, which is animal, and which by resudation coagulates calx.

Alum, which is vegetable, and which by ramification cements soil.

These are the fathers of stones.

EARTHS are reducible to dust, easily become dry, dissoluble, fixed, primitive; are generated by crystallization or formed by præcipitation, produced by acescence or reproduced by putrescence. From these, by crystallization or attraction, stones are reproduced, which by the variation of the elements are repeatedly resolved into earths, and again regenerated by a like perennial circle:

Clay, the precipitation of viscid sea-water,
Is opake, plastic, friable, hardening in the air, and not fusible by the action of fire.

Sand, the crystallization of turbid rain water,
Is hyaline, without moisture, scintillant, of the same permanent hardness, and fusible into glass.

Soil, the resolution of acescent vegetables,
Is black, bibulous, reducible to dust, inflammable, and combustible.

Calx, the resolution of putrescent animals,
Is whitish, absorbent, farinaceous when dry, penetrable, and effervescing with acids.

CLAY, the earth of marine water, formerly opposed to muria, sordid, viscid, slippery to the touch, impalpable, without regular shape, tough, opake, and becoming plastic by the addition of moisture, in its native situation moist, becoming friable when dry, hardening by ignition, not fusible by

the greatest degree of heat, but when mixed with other heterogeneous substances becoming variously shaped by fire; after remaining a long time dry, and compressed, is hardened into rasile *Talc*, which by resolution is often regenerated into fibrous *Asbestus*, but when minutely resolved, is in a wonderful manner reproduced into scaly *Mica*.

SAND, the earth of rain-water, impregnated with ætherial nitre, shining, fixed, rigid, rough, crystalline, hyaline, not softening in water, striking fire with steel, of permanent hardness in ignition, but fusible into glass by the greatest degree of heat; cast upon the continent and dried it forms the *Aranea mobilis*, which worn by age and become friable is the *Aranea Glarea*: each becoming moist under ground, obliquely and transversely cleft, and ultimately uniting and forming *Sand-stone* by minute atoms of crystallization, or mixed with humid extraneous substances is cemented into *Gravel*, and this again into various stones, stones into rocks, but when resolved and recrystallized it forms *Quartz*.

SOIL, the earth of vegetables, eagerly combining with nitre, acescent, of a black colour, greedily imbibing moisture, crumbling into powder in fracture, reducible to dust when dry, flaming in ignition, combustible in a greater degree of heat, by continued compression is indurated into fissile schist, which when saturated with bitumen becomes *Coal*. Schist is however often resolved into earthy *Ochre*, which by multiplied mineralization is regenerated into *Toph*.

CALX, the earth of animals, combined with *Natrum*, alkaline, of a whitish colour, absorbing acids, easily scraped with a knife, farinaceous when dry, penetrable by fire, effervescing when burnt, calcifying moist and argillaceous extraneous substances into *Marble*; but when resolved and saturated with acid is recrystallized into *Gypsum*, not again effervescing with acid without depuration by fire, and each is resolved by the elements into farinous *Chalk*, concreting by ætherial water into *Flint*, but when resolved is recrystallized into *Spar*.

These are the mothers of stones.

STONES grow from earths, are again resolved, and again reproduced.

Clay is attracted into *Talc*, resolved into *Lithomarg*, and regenerated into *Amiant*.

Sand accretes together into *Free-stone*, is resolved into *Gravel*, and regenerated into *Rock*.

Soil is cemented into *Schist*, resolved into *Ochre*, and regenerated into *Toph*.

Calx is coagulated into *Marble*, resolved into *Chalk*, and regenerated into *Alabaster*.

Diaphanous stones have their origin from a fluid mother, opaque stones from a fixed one. They are often tinged with a vitriolic alumen, varying in colour according to their various tinctures, and by these are filled and consolidated with a cicatrix the fissures of rocks.

Mica, the concretion of clay, is scaly, flexible, opaque, shining, becoming more rigid in ignition and at the same time more shining.

Quartz, the crystallization of elementary water, is pellucid, hard, from the watery cavities of rocks, and therefore always parasitic, its crystals being often obscured by abrasion or by its bulk.

Spar, the crystallization of calcareous water, is diaphanous, fragile, whose internal rhombs an adept will easily distinguish from a different crystal; adulterated with iron it becomes harder and strikes fire with steel.

CRYSTALS are stony, produced in and from water impregnated but not saturated with salt, which abounds with impalpable terrestrial atoms and is retained in the cavities of stones. They increase by long and undisturbed habitation, and are not again soluble by water into impalpable atoms. In their many-sided figure they differ from all other stones, nor have they any other, however common to most salts, which is the sole cause of crystallization at present known, nor would salts have a determinate figure unless by similar incorporation. Stalactite accretes with a crystalline covering, in like manner as calculus; and no one will venture to suppose that crystals can exist without salt, or deny that the earth is crystallized by salts. Their transparency is de-

rived from their atomical construction, and their colour from metals. The value of gems is according to their transparency, hardness, permanency and colour; and from their being the principal instruments of human luxury, are often imitated by the frauds of trade.

VITRIOL, the product of alum, intimately allied to metal, is of different appearance and figure according to the nature of the metal, of which the most frequent are Iron, Copper, and Zinc; some therefore most commonly become sulphureous Pyrites, others terrene Ochres. Different Pyrites assume different figures, whose earth into which it is resolved is usually denominated Ochre, which when proceeding from Iron is yellow, and becomes red when burnt; when from Copper by acid is green, by alkali blue; so that stones which are yellow or red, are principally from Iron; those which are green or blue, from Copper. Each kind of Ochre, by crystallization, coagulates earths into *Tophs*.

METALS are supradecomposed, and consist of Earth, Salt, and Sulphur. Iron, whenever present, is often dissolved by the elements; and when dissolved by vitriolic salt and an ochraceous earth precipitated, Iron by crystallization cements earths into stones, and absorbed is multiplied by metal, and so produces many times more than it had primarily received. Vitriol stagnating in the fissures of rocks retaining water, when multiplied and precipitated by a long lapse of time, passes into a vein, and when opened transversely and filled up with a different earth, will forthwith change the metallic vein into a different one; as from Iron or Copper, Lead often becomes enriched with Silver, &c. For the same vein, by variable modification, may abound in Alum, Vitriol, Arsenic, Sulphur, Iron, Copper, Gold, Silver, Antimony, Lead, Zinc, or Bismuth.

ROCKS, appearing like the prominent bones of the earth, are of great bulk, solidity, and longevity; composed of sand, gravel, opake and diaphanous stones, with every where argillaceous and often talcose substances intermixed; and are at length cemented into more solid masses, with a various and

irregular mixture of crystals of Quartz, Mica, and Spar. That these are the offspring of time and the strata of nature, no one will doubt, whose constituent parts are to every one palpable. In these the metallurgist will discover the matrices of minerals, many-shaped from their mixture, and diversified in fire.

PETRIFICATIONS are rather the parents than the product of marmoreous mountains, and may consist of as many diversifications as there are species of animals and vegetables. The intelligent investigator will not therefore straiten the limits of an useful science, by disregarding the ancient inhabitants of the globe, though unknown to modern naturalists. The modes of petrification are principally fourfold; Fossils, substances restored, substances impressed, and substances transubstantiated; and are more frequent in Marble, Flint, Schist, Sand-stone, Rock, and Quartz.

THE difficulties of science have moreover produced various paradoxes.

Consolidated fissures of rocks are often distinctly visible; but by what means or power they have been broken, is not easily demonstrated.

All Spar is generated by crystallization, in cavities filled up, nor is spate ever present without rhombs; but why it is broken into rhombs, or how from a cubico-muriatic is produced a rhombic figure, is not very evident.

Amiant is observed to be regenerated from the earth of Talc, the cause of which is obscure.

That Molybdænum is metallic cannot be doubted, and it has often been asserted to be impregnated with Zinc or Tin; yet it is not easy of proof. Jews-stones are found petrified in hollow cavities, generated from a fluid with spar, of which they often entirely consist; but from what animal they have their origin is not sufficiently evident, since the echini do not afford a satisfactory elucidation.

PRIMARY Salts have a peculiar and determinate figure, but when changed, often appear with a different but alike determinate figure; but from what mixture proper to themselves, or from what extraneous terrene mixture, the student

in this department has not been able to determine ; and since metals are generated from salt by crystallization, Alchemists have in vain laboured at the true transformation of metals ; and this metamorphosis of salts shall remain undiscovered, so long as Metallurgists shall neglect it, and turn their investigation towards earths only.

SIMILAR Strata* of the earth are often observable in broken mountains ; but it is not evident that they are all of the same genus, or produced from the waters of the ocean.

1. The lowermost stratum of *Sand-stone*.
2. The second of *Schist*.
3. The third of *Marble*, with marine petrifications imbedded, and often extraneous matter.
4. The fourth of *Schist*.
5. The fifth and uppermost of *Rock*, often of vast bulk.

IT is palpable to common observation, that the ocean is the mother of the earth.

a. The waters of ocean, made turbid by nitrous showers, are precipitated and crystallized into sand which covers the bottom of the sea.

b. The ocean is here and there in vast patches, overspread with the *Fucus natans*, causing tranquillity on its surface, unless when agitated by variable winds.

c. The soil from decayed *Fuci* b) gradually descends, being lighter than sand a) while this marine vegetable gradually dilates itself into a floating meadow.

d. Marine Worms, *Moluscae*, Testaceous Animals, Lithophytes and Zoophytes, Fishes with their floating eggs, and Sea-birds, whose formation renders them unfit for flight, feed under this marine meadow of *Fucus* c).

e. Under the waters in a state of tranquillity b), is showered down an argillaceous sediment with the calcarous shells d) of gradually corrupting worms, till an elevated accumulation is formed parallel with the surface of the sea,

* The various strata of earth are constantly observed in equal order and distance ; and therefore this accretion of soil, so well kept distinct, should be rather considered as the operation of a succession of ages, than the tumultuous jumble of the general deluge. *Ramazz. mut.* 279.

while its pressure moving the waters b), repels the marine substances around it d).

f. For the formation of Rock, according to its own laws, the sea first casts up vast masses of Fuci, which moulder into soil, clothing the naked earth at the bottom with an arenaceous covering, at first easily blown about when dry, and when mixed concreting into gravel and ultimately into rocks.

g. By a long succession of ages therefore, and by a perennial quiescence of seasons.

1. *Sand* a) is concreted into *Sand-stone* 1), variously but properly cleft.

2. *Soil* c) is cemented into *Schist* 2), lamellous and combustible.

3. *Clay* e), is indurated into *Marble* 3) congulated by worms.

4. *Soil* f) is cemented into an upper stratum of *Schist* 4), lamellous and combustible like the former.

5. *Sand* f) is concreted into *Gravel* 5); with a mixture of other substances.

6. This again concreted into smaller stones, these into larger, and these last into rocks; till at length, the waters of the sea gradually subsiding, there appears a mountain: nor can the highest rocks float upon an argillaceous surface, while, before it became calcified, marine worms continue their growth in it. That the highest rocks therefore are the genuine offspring of time, while all was silence, themselves sufficiently declare. 'Such are the mutations produced by the lapse of time.' *

IT is very rarely, and indeed scarcely ever, that the *Species* can be sufficiently determined, since in these the generation proceeds not from the egg; but the multiplied variety of irregularly sportive nature, is at once the calamity of the science and the foundation of metallurgy. He therefore that shall rashly endeavour to multiply the species, is not less absurd than him who combines substances totally different in nature. Nor does their matrix distinguish the different species, more than their natural situation and soil do the plants of the earth. The numerous diversities of stones, therefore,

* Luc. xii. 40.

are principally varieties ; in the arrangement of which, without caution, it is easy to fall into error.

THE student has three modes of investigating this Kingdom : *Physical*, which descends through the obscure generation of minerals : *Natural*, which considers their superficial and visible structure : *Chemical*, which ascends through their destructive analysis. In this then, as in every thing else, he will most safely follow the middle course, and by closely following his ariadnean thread, he will not, like an empiric, confound the symptoms with the cure, nor bring forward the doubtful progeny of a long lost ancestry ; much less will his terrified imagination raise up fanciful spectres in the dark, or persuade him that the Phoenix of the poets may be regenerated from its own ashes : but he will learn, what names are repugnant to things, and what are convenient ; and how to define characters by their diagnostics, and not merely by their etymology. But here let me pause, lest in endeavouring to remove obscurity, I myself become obscure."

" VEGETABLES.

" Created nature by a succession of seeds with the assistance of the elements, modifies earths into vegetables ; vegetables into animals, and resolves each of them again into earths in a perennial circle. Vegetables have life without voluntary motion."

" ANIMALS.

" MAN, when he enters the world, is naturally led to enquire who he is ; whence he comes ; whither he is going ; for what purpose he is created ; and by whose benevolence he is preserved. He finds himself descended from the remotest creation ; journeying to a life of perfection and happiness ; and led by his endowments to a contemplation of the works of nature.

Like other animals who enjoy life, sensation, and perception ; who seek for food, amusements, and rest, and who prepare habitations convenient for their kind, he is curious

and inquisitive: but, above all other animals, he is noble in his nature, in as much as, by the powers of his mind, he is able to reason justly upon whatever discovers itself to his senses, and to look, with reverence and wonder, upon the works of Him who created all things.

That existence is surely contemptible, which regards only the gratification of instinctive wants, and the preservation of a body made to perish. It is therefore the business of a thinking being, to look forward to the purposes of all things; and to remember that the end of creation is, that God may be glorified in all his works.

Hence it is of importance that we should study the works of nature, than which, what can be more useful, what more interesting? For however large a portion of them lies open to our present view, a still greater part is yet unknown and undiscovered.

All things are not within the immediate reach of human capacity. Many have been made known to us, of which those who went before us were ignorant; many we have heard of, but know not what they are; and many must remain for the diligence of future ages.

It is the exclusive property of man, to contemplate and to reason on the great book of nature. She gradually unfolds herself to him, who with patience and perseverance, will search into her mysteries; and when the memory of the present and of past generations shall be entirely obliterated, he shall enjoy the high privilege of living in the minds of his successors, as he has been advanced in the dignity of his nature, by the labours of those who went before him.

The UNIVERSE comprehends whatever exists; whatever can come to our knowledge by the agency of our senses. The *Stars*, the *Elements*, and this our *Globe*.

The STARS are bodies remote, lucid, revolving in perpetual motion. They shine, either by their own proper light, as the *Sun*, and the remoter *fixed Stars*; or are *Planets* receiving light from others. Of these the primary planets are solar; *Saturn*, *Jupiter*, *Mars*, the *Earth*, *Venus*, *Mercury*, and *Georgium Sidus*; the secondary are those subservient to, and rolling round the primary, as the *Moon* round the earth.

The **ELEMENTS** are bodies simple, constituting the atmosphere of, and probably filling the spaces between the stars.

<i>Fire;</i>	lucid,	resilient,	warm,	evolant,	vivifying.
<i>Air;</i>	transparent,	elastic,	dry,	encircling,	generating.
<i>Water;</i>	diaphanous,	fluid,	moist,	gliding,	conceiving.
<i>Earth;</i>	opaque,	fixed,	cold,	quiescent,	steril.

The **EARTH** is a planetary sphere, turning round its own axis, once in twenty-four hours, and round the sun once a year; surrounded by an *atmosphere* of elements, and covered by a stupendous crust of *natural bodies*, which are the objects of our studies. It is terraqueous; having the depressed parts covered with waters; the elevated parts gradually dilated into dry and habitual continents. The *land* is moistened by *vapours*; which rising from the waters, are collected into *clouds*: these are deposited upon the tops of mountains; form small *streams*, which unite into *rivulets*, and reunite into those ever-flowing *rivers*, which pervading the thirsty earth, and affording moisture to the productions growing for the support of her living inhabitants, are at last returned into their parent *sea*.

The study of natural history, simple, beautiful, and instructive, consists in the collection, arrangement, and exhibition of the various productions of the earth.

These are divided into the three grand kingdoms of nature, whose boundaries meet together in the Zoophytes.

MINERALS inhabit the interior parts of the earth in rude and shapeless masses; are generated by salts, mixed together promiscuously, and shaped fortuitously.

They are bodies *concrete*, without life or sensation.

VEGETABLES clothe the surface with verdure, imbibe nourishment through bibulous roots, breathe by quivering leaves, celebrate their nuptials in a genial metamorphosis, and continue their kind by the dispersion of seed within prescribed limits

They are bodies *organized*, and have *life* and not sensation.

ANIMALS adorn the exterior parts of the earth, respire, and generate eggs; are impelled to action by hunger, congeneric affections, and pain; and by preying on other animals

and vegetables, restrain within proper proportion the numbers of both.

They are bodies *organized*, and have *life, sensation*, and the power of loco-motion.

MAN, the last and best of created works, formed after the image of his Maker, endowed with a portion of intellectual divinity, the governor and subjugator of all other beings, is, by his wisdom alone, able to form just conclusions from such things as present themselves to his senses, which can only consist of bodies merely natural. Hence the first step of wisdom is to know these bodies; and to be able, by those marks imprinted on them by nature, to distinguish them from each other, and to affix to every object its proper name.

These are the elements of all science; this is the great alphabet of nature: for if the name be lost, the knowledge of the object is lost also; and without these, the student will seek in vain for the means to investigate the hidden treasures of nature.

METHOD, the soul of Science, indicates that every natural body may, by inspection, be known by its own peculiar name, and this name points out whatever the industry of man has been able to discover concerning it: so that amidst the greatest apparent confusion, the greatest order is visible.

SYSTEM is conveniently divided into five branches, each subordinate to the other: *class, order, genus, species*, and *variety*, with their names and characters. For he must know the name who is willing to investigate the object.

The science of nature supposes an exact knowledge of the nomenclature, and a systematic arrangement of all natural bodies. In this arrangement, the *classes* and *orders* are arbitrary; the *genera* and *species* are natural. All true knowledge refer to the species, all solid knowledge to the genus.

Of these three grand divisions the *animal* kingdom ranks highest in comparative estimation, next the *vegetable*, and the last and lowest is the *mineral* kingdom."

You have now before you the views of Linnæus on the three grand Kingdoms of Nature—the mineral, vegetable, and animal—the whole of which he has faithful portrayed, and his system being received in every country, illumined by the rays of science, may be considered as the Bible of Nature, the great nomenclature of natural science; where every genuine character is a family portraiture, and every specific description a minature; and where, by a few simple appropriate terms, the image of every distinct object on the globe we inhabit, is reflected on the mind and memory. To this system may be justly applied the nervous observation of Dr. Johnson, in his delineation of the character of Shakespeare. “The stream of time which is continually washing away the dissoluble fabrics of other systems, passes without injury by the adamant of Linnæus.”

“In our own country,” writes Mr. Combe, “two views of the constitution of the world and of human nature have long been prevalent, differing widely from each other, and which if legitimately followed out, would lead to distinct practical results. The one is, that the world, including both the physical and moral departments, contains within itself the elements of improvement, which time will evolve and bring to maturity; it having been constituted by the Creator on the principle of a progressive system, like the acorn in reference to the oak. This hypothesis ascribes to the power and wisdom of the Divine Being the whole phenomena which nature, animate and inanimate, exhibits; because, in conferring on each part the specific qualities and constitution which belong to it, and in placing it in the circumstances in which it is found, He is assumed to have designed, from the first, the whole results which these qualities, constitution, and circumstances, are calculated in time to produce. There is no countenance given to atheism by this theory. On the contrary, it affords the richest and most comprehensive field imaginable for tracing the evidence of Divine power, wisdom, and goodness in creation.

The other hypothesis is, that the world was perfect at first, but fell into derangement, continues in disorder, and does not contain within itself the elements of its own rectification.

If the former view be sound, the first object of man, as an intelligent being in quest of happiness, must be to study the elements of external nature and their capabilities; the elementary qualities of his own nature, and their applications; and the relationship between these. His second object will be to discover and carry into effect the conditions—physical, moral and intellectual—which, in virtue of this constitution, require to be realised before the fullest enjoyment of which he is capable can be attained.

According to the second view of creation, no good can be expected from the evolution of nature's elements, these being all essentially disordered; and human improvement and enjoyment must be derived chiefly from spiritual influences. If the one hypothesis be sound, man must fulfil the *natural conditions* requisite to the existence of religion, morality, and happiness, *before* he can reap full benefit from religious truth: according to the other, he must believe aright in religion, and be the subject of spiritual influences independent of natural causes, before he can become capable of any virtue or enjoyment; in short, according to it, science, philosophy, and all arrangements of the physical, moral, and intellectual elements of nature, are subordinate in their effects on human happiness on earth, to religious faith."—*Constitution of Man*, p. 4.

In the above judicious remarks of Mr. Combe on the views taken of the constitution of the world, he makes no mention of the elementary principles, their qualities and combinations; so necessary to produce that health of body and peace of mind which the Deity has displayed in such an admirable manner in his construction and disposition of the materials which compose, and are still re-forming the new world from the wreck of the old. It is in America the geologist can revel with unbounded pleasure; he would soon discover that the largest portion of the United States and South America has been recently under water, except the various mountains and spurs shooting from thence, termed the primary formation. The secondary is now forming upon the most splendid and extensive scale, where all the various sorts of coal are being produced from the vast quantities of wood collected there. The different species of wood and

the various gases entering into their composition, form the great variety of coal—the metals, minerals, and the various combinations of earth are formed on similar principles. I have found that the basis of the secondary formation is a bed of clay, and in places where wells were being dug, I have examined the various strata from 150 to 500 feet deep; on reaching the clay, it was of a hard saponaceous texture, dark brown, yellow, red, grey, and in some instances white as snow; beneath which was generally coarse, hard gravel, and the finest water in abundance.

On the surface of the clay there was an immense variety of antediluvian remains and seeds of every description, most of which mouldered away when exposed to air and moisture, whilst numerous seeds of grasses, cabbage, or brassica tribe of plants and others imbedded in calcareous earth vegetated. According to the Mosaic account, the deluge took place in autumn, when the seeds were ripe; had it occurred in spring or summer, the world would have presented a barren waste, without verdure, animals or vegetables; in fact it would have required a second creation, but for the wise provision made by the divine command in the ark, and casual circumstances as earthquakes, the bursting out of landsprings, excavations, rends of mountains and others, which have brought the numerous seeds to the surface, imbedded previously in the bowels of the earth, where they vegetate and grow; hence the new genera and species of plants continually presenting their beautiful foliage and inflorescence to our view.

When we consider that they adorned the old world, and have been preserved amidst the wreck of the antediluvian relics, a wide field for admiration and adoration is opened to us, and a happy emblem of the hope we cherish. Having given the foregoing theories on the creation of the world, it will be proper to notice the primitive soils, and their fertilizing powers as applicable to the purposes of life. According to Linnæus there are four, clay, sand, black soil, or peat earth, and calx or the earth of animals; see his view of their formations and various combinations, which is correct, embracing every diversity of earths and minerals, leaving little for future observation, but to watch the various combinations

during the lapse of time. Large portions of America as we approach the equator have never been covered with verdure since the deluge, but still remain a sandy waste, grounded on clay, generally combined with iron to a great extent. I have often observed with pleasure the crows breaking off the branches of the *Quercus virens* or live oak; the *Quercus ilicifolia*, evergreen oak; the *Quercus nana*, or dwarf oak; and when that was impossible, flying away with the acorns and burying them in the sand; the squirrels would be also busy in the same way, and when the rainy season commenced, the acorns would sprout and shoot their roots downwards into the soil beneath. Sand, clay, and iron, enter largely into the composition of the oak. The roots diverging according to the increase of the trees, the leaves falling, and the exudation from the trees themselves, combining with the sand will become in the course of twenty or thirty years, converted into a strong yellow loam; hence we find large tracts of land which otherwise might have continued useless deserts, changed by the industry of the crows and squirrels, into a good soil capable of producing verdure: the spreading branches with their foliage shelter the land from the scorching rays of the sun, and afford them a habitation, the reward of their exertions. These animals considered perhaps by many, superfluities in creation, would thus be the means of sowing the ground with the wild rye, and the various grasses that serve them for food, and lay up an abundant store by their seeds in summer, for the time when little else could be found for their support. There certainly appears to be something beyond that of instinct, in the soil being thus regenerated; and when we contemplate the immense magnitude of the undertaking, it would have puzzled the most mighty empires to have effected the same, for even if the mode of accomplishing it had been known, it would have required too much money to complete, and patience would be exhausted long before a *profit* could be obtained, therefore the project would never be achieved, but the dismal prospect of sterility present itself, where otherwise cultivation might be seen and applauded.

About thirty-nine years ago I informed a friend of mine, Dr. Barron of Charleston, South Carolina, of the above

extraordinary manner by which the regeneration of the soil had taken place; his country seat, about ten miles on the Dorchester road, was surrounded by a quick sand of from three to four feet deep, on a hard base; men were immediately employed, and the fields in the front of the house, where the pine had previously grown, were planted with oak trees, but the surface being sand they were compelled to drive stakes to a great depth in order to prevent their being blown down; three years ago I saw the same fields, and found the whole soil converted into a strong yellow loam, and the trees some of the finest that can possibly be met with; they will be fit for both ship timbers and planks of common dimensions in about seventy years, and for the *first rate* ships within a century. When the ground is cleared it will then produce as good crops of corn or cotton as any in the State. Agriculturists should visit the spot and examine into the rapidity, with which the soil undergoes regeneration, as the fact is of paramount importance. I have no doubt that the largest portion of the globe has been improved in a similar way, and in the process of time every sort of herb, shrub, and tree will get into the soil, by the animals; and the wings of numerous seeds destined to be borne before the wind will be scattered in every direction, producing vast forests. By the annual falling of leaves and the decay of timber, the soil becomes in the lapse of years completely changed, and when that occurs in poisonous herbs, vines and roots, it gets cankered, and unless salts and alkalies are employed to regenerate the soil, the grain and grass produced on it will infect both animals and man; hence all kinds of diseases among the stock, and bilious, remittent and putrid fevers, and agues that follow cultivation, particularly in America, which fact is corroborated in Morse's Geography, when describing the early settlement of the country, from the above preventive means not being attended to.

In consequence of the neglect of the regeneration of the soil by the antediluvian world, we have the awful denunciations of the Almighty, contained in Genesis, chap. vi. 11th, 12th and 13th verses, viz. (11) "The earth also was corrupt before God, and the earth was filled with violence." (12) "And God looked upon the earth, and behold it was

corrupt, for all flesh had corrupted his way upon the earth.” (13) “ And God said unto Noah, the end of all flesh is come before me, for the earth is filled with violence through them, and behold I will destroy them with the earth.” When we consider the above awful catastrophe, the destruction of the world, and the cause of it, we shall find ourselves much in the same state at the present day. It was the intention of the Deity that man should be the governor of the world, and it ought to have been his first care so to regenerate the soil, as to preserve it in a healthy state ; but the preceding account clearly proves his total neglect of the duties enjoined on him by his Creator, the regeneration of the soil, and the rejection of every thing calculated to injure the bodily health and destroy peace of mind. It has been the opinion of medical men in all ages that both animal and vegetable substances undergoing decomposition are highly destructive to the health and lives of animals and men, as the subsequent observations will fully demonstrate.

The water coming from rich alluvial soils is very pernicious, and thus the practice of mixing it with spirits, as an antidote to its injurious effects, which might perhaps obviate it, but at the hazard of creating something worse. At my suggestion, the inhabitants of the Southern States use rain water, with the happiest effects, and Charleston, which before was the most unhealthy place in the world, may now be considered, from the adherence to the plan I laid down, a specimen of the benefit resulting from it, for in no other city can the inhabitants boast of better health, than they enjoy. There is a mode of regenerating the soil, which the wise author of nature foresaw, in the creation of one of the most useful genera of plants, the pines or fir trees ; every seed of which is furnished with a wing, and when ripe they are wafted by the winds to distant shores, they then begin to grow, and all other vegetation is soon destroyed. Their roots ramifying horizontally, shrubs and vines are speedily uprooted and absorbed, as also the whole of the soil, except sand, iron, clay, and lime, they are the best regenerators of the soil, independent of their invaluable medicinal virtues and domestic uses. Fire is also a method by which the soil is regenerated, thence the immense tracts of barren land, where

the earth has been burnt up, leaving nothing but sand, iron, clay, and peat soil or black earth, which, when properly combined and mixed with lime or any alkali, will yield the best of crops. There is still another means employed for that purpose, but on a limited scale, by human industry, in draining, planting of Indian corn, and manuring with alkalies and salts. The corn like the pine, soon absorbs the soil, and is the most useful of all grain when thus cultivated, for the alkalies neutralizing the noxious qualities of the soil, it becomes the best food for stock and poultry, as well as for man.

The great object I have in view, being to point out the physical evils, attending the neglect of the prohibitions in the Mosaic Law, it will be necessary to make a few observations on that servant of the most High God, to whom the divine oracles were delivered; on the difficulties he had to encounter, in reforming the nation of slaves under him, and the code of health laid down and dictated by divine wisdom, which far surpasses the ingenuity of man. It has been observed that Moses received his education at the schools of Egypt, and the court of Pharoah, which I positively deny, as the very law I am about to review, is diametrically opposed to the policy pursued; and the diseases prevalent in Egypt, had no existence among the Jews, so long as they obeyed the law, but on their disobedience, all the denunciations of the plagues of Egypt came upon them, and followed them; their strength was completely sapped, and every part unsound; down they sunk, and spread ruin around, until they became a reproach among the nations. What an awful lesson to us at the present day! we are fast verging on the precipice, which engulfed that unfortunate people. The plagues predicted by Moses, particularly in the 28th chapter of Deuteronomy, to overthrow the Jewish nation, for their neglect of the law, enforcing the proper system of agriculture, that their flocks, grain and fruit would become diseased and their soil sterile; were followed with all the curses written in the Bible, Moses reasoning from cause to effect, sinning and suffering; after all the plagues enumerated in the law were poured out upon them, there was yet a fearful catalogue *not written*, with which they were to be afflicted, and which has been fulfilled to the very letter.

I will now advert to the causes and effects of allowing the soil to rest which was the practice among the Jews, as laid down by the law, every seventh year. Moses foresaw the benefits resulting from such a course, for by cropping the soil for a length of time, the roots of the grass and grain would reduce the particles of the earth, even sand; and strong cropping extracts most of the salts and alkalies, thus the utility will be seen of the above command; that sufficient time may be allowed for the reproduction of those qualities so absolutely necessary to the fertility of the soil. When, from the oxidized state of the atmosphere, the earth has a strong tendency to become acid or sour, the productions of it partake of the same nature; and when the elementary principles of the soil, which consist of hydrogen, oxygen, nitrogen, and carbon, are deranged, and either of them in excess, such soil is certain to produce corresponding diseases in the stock, and persons who use the food raised on it.

The precise state in which the soil rested, is not mentioned in the Bible, but merely that there was to be a sabbatical year, whether they fallowed the land or trenched it; neither is the manner of manuring the land known. I will refer to the 25th chapter of Leviticus, where the wisest distribution of property that has or ever can take place, is to be found, and the absolute necessity of resting the land is strongly insisted on. The plagues which were consequent on a disobedience of the command are stated in the succeeding chapter, a few of which I shall quote; verse 32. "And I will bring the land into desolation and your enemies which dwell therein shall be astonished at it." We cannot wonder at the astonishment of the heathen, as they had an opportunity of observing the former prosperity and glory of the Jewish nation; for whilst they obeyed the law and rested the soil, they were raised to the highest pitch of prosperity, which made their fall the more conspicuous: and it must fill the contemplative mind of the christian with silent awe, when he surveys the magnitude of the ruins, the more particularly as we are fast hastening towards the same point, and shall ere long fall headlong into the abyss, should not God in his mercy prevent it, as I shall have an opportunity of shewing. The same ignorance of the laws of nature and of God prevail now as then, and

when we take a survey of our own sins, crimes, discords and diseases, they bear so strong a resemblance to those of the Jews, that my hand trembles while I write, but I will continue the quotation from Leviticus, (33) "And I will scatter you among the heathen, and will draw out a sword after you, and your land shall be desolate, and your cities waste." (34) "Then shall the *land enjoy her sabbaths, as long as it lieth desolate*, and ye be in your enemies' land; even *then* shall the land rest, and enjoy her sabbaths." (35) "As long as it lieth *desolate*, it shall rest, because it did not rest in your sabbaths when ye dwelt upon it." (36) "And upon them that are left *alive* of you, I will send a *faintness* into their hearts in the hands of their enemies; and the sound of a shaken leaf shall chase them; and they shall flee as fleeing from a sword, and they shall fall when none pursueth." (37) "And they shall fall one upon another, as it were before a sword, when none pursueth, and ye shall have no *power* to stand before your enemies."

The system of routine cropping pursued by the farmers forty-five years ago, throughout most parts of this kingdom is still alive in my recollection; at that time the cattle were not half the size they are now, and then the roast beef of old England was proverbial for its super-excellent qualities; a healthy and robust population was the consequence, to a greater extent perhaps than at any other period in the history of Britain. I shall presently point out the cause of the declension in the present generation, after laying before you a striking monitor in the rise and overthrow of the Jews.

Having mentioned the mode of regenerating the soil, I will refer to the manner in which the Jews managed and fertilized their lands. When travelling in the island of Cuba, I was introduced to a Spanish Priest, who informed me, that while pursuing his studies at Rome, he was employed to transcribe the observations made by the Roman travellers relative to the policy of the Jews in their cultivation of the soil, and from hints given by some of the most ancient, he found that they were in the habit of trenching the ground periodically, at least once in seven years, so as to allow the worn out land which had been cropped for the previous six, to rest, and give it a chance of recrystal-

lizing, when it would be retrenched or turned up on the surface to undergo its routine of cropping ; and thus the people were constantly living on food produced from new and virgin earth. The mode of manuring he stated, was, never to allow any to be used unless mixed with salts and alkalies to neutralize its corrupt properties, and no manure was permitted by law, on the surface of the land, Deuteronomy, chap. xxiii. verses 12, 13. " And thou shalt have a place also without the camp, whither thou shalt go forth abroad. And thou shalt have a paddle upon thy weapon, and it shall be when thou wilt ease thyself abroad, thou shalt dig therewith and shalt turn back, and *cover* that which cometh from thee." Nothing will disease animals and men sooner than food raised on human fæces, independent of its pestilential exhalations contaminating the atmosphere. My butcher at Bayswater informed me that when used as a top dressing to the land it gives sheep the foot rot ; in order to put it to the test, he had a small spot so manured, and in three weeks the six sheep allowed to graze there, were all diseased. Fowls crop the grass very readily, but mutton or poultry so fed, generally are offensive when brought to the table, and most certainly will disease those who partake of them, either with diarrhœa, scarlet fever, or some other disorder. Pig manure also, and that obtained from the common sewers of cities, when employed in the cultivation of potatoes are sure to bring on typhus fevers, hence the prevalence of that disease among the poor Irish—they are more generally affected, and from that cause, than any other people on earth. Dr. Prior of the College of Dublin, after perusing my two works, " New Medical Discoveries," and " The Causes and Effects of Inflammation and Fever," closely watched the result of growing potatoes in such manure, and advised many to make experiments on it. He fully proved their pernicious quality, for all who eat them, were affected with fever, and those who lived on the potatoes grown in soil without the manure, in the same parish and altitude, did it with impunity, although they visited the sick and dying ; a stronger proof of the morbid quality of such manure cannot be adduced.

I must here refer to the mischevious mode of applying the contents of the common sewer, running from Edinburgh

to the sea, called Tumbleburn by the farmers, who use it in large quantities to top dress their land, and as dairy cows are fed on the herbage of such fields, for the supply of milk, we need not wonder at the host of diseases assailing that fine city, and particularly the rising generation, from the use of it being totally at variance with the laws of nature. Dr. Mackintosh when treating of eruptive fevers, remarks "the scarlet fever is a fatal disease, and more particularly so it is said in this city, the plague is scarcely more dreaded at Constantinople than the scarlet fever is in Edinburgh." Some of the philanthropic inhabitants endeavoured to obtain an act of Parliament for making Tumbleburn a covered drain, through its whole course, so as to obviate the putrid effluvia constantly arising; but from the interest of the milkmen, the bill was lost, and her Majesty's liege subjects are still allowed to regale their olfactory nerves at Tumbleburn. But I beg to tell the philosophers and critics in the metropolis of the land of my fathers, that the use of its contents in manuring the land, is highly prejudicial to the health of one of the finest cities in the world, and if they would send up another bill to Parliament, in order to remove the source of so much mischief to the community, it shall have all the influence I can enlist, and the co-operation of every *well wisher* to "Auld Reekie."

The method employed by the Chinese, as related to me by the late Dr. Morrison, is well worthy of attention, he observed, they had three reservoirs at the end of each common sewer, where the contents were allowed to subside; the fluid part was drawn off in casks, and vessels were constructed on purpose for carrying it along the canals. Lime, salt, nitre, and other alkaline substances were added, with which the land was irrigated, as we water the streets, it was thus fertilized and all the insects destroyed. With *two* parts of the thick portion, were mixed *two* of clay, or clay and sand, *one* part lime, salt and nitre or some alkali, it was all worked up like bricks, placed in rows by the shore, convenient for navigation, and carried to a great distance, for enriching the soil. The Doctor broke some of it in pieces, but it had no smell; and the vegetables raised on it being of a superior quality, showed how admirably calculated it was

for effecting the object in view. The address of Loo-hoo to Lord Napier, was a severe castigation, when he called him *one eye*, by which I infer, he thought we took but a half view of any subject; and termed us barbarians, living in swamps and bogs, like ducks. No doubt he has had a perfect history of the manner, in which we dress the surface of the soil, with recent manure, producing all kinds of poisonous weeds and insects, compelling the animals to eat their own excrement, or what is worse, that which comes from the common sewers. I would strongly recommend the good folks in Scotland, to pursue the Chinese plan; but my countrymen may say, how is it England is not in better order? I am afraid we are past cure: the water drank in London is, in part, from the river Thames, into which one hundred and thirty-nine common sewers run, belching forth the excrements of fifteen hundred thousand inhabitants, with the filth of ten thousand stables, the numerous gas factories, tens of thousands of copper bottomed ships floating on its surface, and every other nuisance, thus daily diseasing the people; whilst if we followed the mode of the economical inhabitants of the "Celestial Empire," all this may be turned to a good account and be of most essential service to the public health. I will venture to assert that in dry weather, the common sewers furnish half the river, for a full description of that horrible cesspool, see my book on "Inflammation and Fever." One or two years poor's rates would bring a supply from above high water mark, without any other expense than conveying the water from above Twickenham in a covered canal, to a reservoir, when we should have a salutary article to drink.*

* While writing the above, I have been informed that such an undertaking is actually in progress, but when completed, it will not answer the desired end, for the pipes laid down being of iron, their inner surface will soon become corroded, and the water so strongly impregnated with iron, as to render it unfit for indiscriminate use, and highly injurious to those affected with consumption, indeed we can find no precedent for such a pernicious practice in any quarter of the globe, particularly among the ancient nations. When at New York, about four years ago, the impropriety of using iron pipes was clearly demonstrated, for the water which ran through the streets was so saturated with iron, that it had the appearance of a solution of yellow ochre. In Philadelphia also the effect was the same, and the inhabitants were about having the pipes taken up, to

I find the Jews had generally large reservoirs to hold rain water in, and used it for cooking and general purposes, for which there is no equal to it, in a healthful point of view, it was employed also to irrigate the soil. The mode of trenching, practised among the Jews, was done in many parts of their territory every seventh year, as my Spanish friend informed me, and in the following manner; the land was divided into seven compartments, and a seventh of it trenched every year, which was covered with the recent rank manure of that year, and a portion of salt and lime. My own experience on the subject is this, open a trench, two feet wide and from fourteen to eighteen inches deep, then take a spade depth, turning the dung and lime under, and the next spade-full to be thrown on the top; this is to be continued until the field is gone over. The earth dug out at first will be carried to the opposite side of the field, to fill in the last trench, the lime will combine with the subsoil at the bottom of the trench, and prevent the dung from sinking, should the land be sandy; the lime, salt, and dung, will be gradually absorbed by the earth and form large particles or crystals. The trenching ought to be performed in the fall, so that the subsoil may be exposed to the air and frost, to mollify, during the winter. The farmer should have a sufficient quantity of compost, made with lime, wood ashes, salt, new earth from the ditches, wood, and peat or swamp earth, and rotten dung; if the land is clay, a portion of sand should be put with the compost. Draw trenches across the field as soon as the spring will admit, three inches

lay down leaden ones lined with tin, which would entirely obviate it. As cleanliness is a great point in morality, I may observe, that it is necessary for the water to be as soft as possible, but I have learnt from the washerwomen and others about Spitalfields, that when the New River Company first started, the water, from running through wooden pipes, was some of the finest and softest for washing they ever used, but that now iron ones have been substituted, it is so hard they are obliged to mix potash with it in order to soften it and render it fit for use. I have had many of them as patients, with their hands corroded and swollen to a great extent from using water so saturated with potash, causing the most excruciating pain. There is a Society for the prevention of cruelty to animals, it would be desirable to institute one for the prevention of cruelty to the human species also.

deep and wide, and two feet apart, sow white pease or Windsor beans, and cover them with the compost, rake the earth to them as they grow up, and, should the season be favourable, a very fine and perhaps double crop will be the result. They will be off the ground in time to sow a crop of turnips, for which, draw a shallow trench three inches in depth and width, half fill it with compost, sow the turnip seed, and then fill the trench with the same, hoe and clean them properly, and there will be an excellent winter crop. Give it a dressing with compost and a shallow ploughing in the winter, and sow wheat in the spring after. Sow barley with proper grasses for soiling the stock, and hay the following year. If it is required, oats may be substituted for barley, and cut for green fodder for the stock during summer, and a part for hay; cut when the grain is beginning to harden, the cattle will eat it in winter better than any other, and it makes them give the best of milk. The oats being cut early, the grass has a chance of coming on quicker, a cutting may be obtained in the fall, for fodder and hay for three years, which will bring on the sixth year; pasture it and soil the stock in racks in the field during summer. Plough it in the fall to mollify, sow wheat, barley or oats in spring, and trench it the following fall, throwing all the rank dung of that year, with a portion of lime and salt under; it will be eligible for sowing whatever crop is most suitable to the soil, if clay, beans or pease will be best for the first crop. The crystals or particles will be so perfectly formed, that the ground will bear six years of strong cropping without manure. The seven fields treated in the same way and the trenching one field and re-trenching another every year, may be continued to the end of time, without wearing out the land, and the crops raised on virgin earth, without the roots coming in contact with recent manure, which every rational mind will approve of.

The Jews during the theocracy, and for some time when under their kings, were the most powerful people on earth, until the period when they became fat and neglected the proper cultivation and resting of the soil. The Romans pursued the system of agriculture, the Jews neglected, which enabled them to conquer the world, for whoever consults Jan's history of the Jews will find, that when the

Romans made use of the food raised by the heathen, disease and pestilence were sure to ensue.

Having described the mode of preparing and manuring the soil, I now come to the cropping of it, Deuteronomy, chap. xxii. verse 9, "Thou shalt not sow thy vineyard with divers seeds, lest the fruit of thy seed, which thou hast sown, and the fruit of thy vineyard be defiled." This important prohibition is the principal foundation on which the laws of life and health are built; and how much is it to be lamented that it has not been properly understood by the great bulk of agriculturists: for in every age, since the promulgation of the law, even unto the present time, so long as it was rigidly adhered to, the greatest benefit accrued to the people. When we examine the reasons for the prohibition; an extensive field is opened to investigation. The doctrine of moral good and evil is fully established in the laws of nature; for more than half the plants which cover the surface of the globe, in the corrupt state of the soil, are highly destructive to the lives of domestic animals and mankind, hence the moral depravity that has been the cause of the overthrow of bygone states and kingdoms for want of such knowledge; the same cause has been operating most powerfully against Britain and Ireland for some time past. If the various genera of the natural order Gramineæ, which includes the grains and grasses, should be sown in the same field, and flower at the same time, so that the pollen of the two flowers mix, a spurious seed will be the consequence, called by the farmers, chess, and is always inferior and unlike either of the two grains that produced it, both in size, flavour, and nutritious principles. Here we find a complete confirmation of the doctrine of Linnæus, that the genera and the species of that genera are only natural as they live in harmony with each other, being as it were descended from the same common parent. Different genera of the same class and order, do not only produce spurious seed, but their roots coming in contact with each other, they do not thrive; when this occurs in plants of different classes, the roots of the one will strike into those of the other, absorb the vital juices and finally destroy it; the constitution of the conqueror will become depraved by the absorption of elementary principles, contrary to its

nature, particularly if grown on soil that has become corrupt. We therefore clearly see the necessity of regenerating the soil, and the greatest care should be taken to keep the different genera of seeds apart in their growth, especially if we consider how the elementary principles of adverse classes vary. In order to explain this more fully, six tea-spoonsful of the oil of any bland plant, from any six classes of the Linnæan system may be taken separately with impunity, but a tea-spoonful of each combined, would endanger life; hence the utility of the law. It need not therefore be wondered at, if the oils of bland vegetable substances combined, produce such pernicious effects on the constitution, that half the vegetables on the surface of the globe, in its present corrupt state, are highly destructive to health and life, most of them bringing on premature disease and many causing immediate death, such as the oil of Tobacco, Croton, Hellebore, Belladonna, Hyoscyamus, Ranunculus or buttercup, and many others infecting the pasture lands destroying both animals and man. We need not be surprised at the dreadful effects produced from butter, when the cows are feeding on such poisonous plants. I will assert that butter and the fat of butcher's meat are the source of more misery to the inhabitants of this kingdom than all the ills of life put together.

As the far greater part of the land in England, with the exception of the mountains and downs, has lain in pasture for many years, and become covered with poisonous plants, from being top dressed with recent manure from stable yards and from the stock themselves, which makes good grass unhealthy, and increases the powers of poisonous plants to an awful extent, the earth is in a highly corrupt state, and fosters all kinds of insects; they in their turn change and disease the grass and grain, making it destructive to the health and life of the human and brute species. Moses clearly foresaw the many evils arising from cattle, sheep and goats being fed on such corrupt pasture before it was reclaimed, his prohibition is in the 12th chapter of Leviticus, 23rd verse, "Speak unto the children of Israel, saying, ye shall eat no manner of fat of ox or of sheep or of goat." 25th verse, "For whosoever eateth the fat of the beast of

which men offer an offering made by fire unto the Lord, even the soul that eateth it shall be cut off from his people." An awful denunciation indeed against those that eat the fat of clean animals, and what shall we think of the consequences likely to ensue from using the fat of those that are diseased and unclean? Moses knew that the animals above alluded to, when kept for domestic purposes, lost that discrimination which they possessed in a wild state, so necessary to select their food, and would eat those plants which would disease the products of their bodies, more particularly the butter, cream and fat.

Pure fat, when chemically examined, is found to contain no azote, and little oxygen, but is chiefly composed of hydrogen and carbon; these two principles being in excess, render it highly destructive to life; hence wise men in all countries have condemned the use of it. "I do not consider" says John Hunter "either the fat or the earth of bones as a part of the animal: they are not animal matter, they have no action within themselves; they have not the principle of life."

Having experienced the pernicious effects on myself, of fat and butter, I shall be better able to point out their destructive tendency to others. For twenty years after my arrival in America, I pursued assiduously the study of botany, and during the course of my extensive travels, my attention was particularly turned to the Mosaic Prohibitions. My food consisted entirely of the wild animals and game I met with on my journey through the deserts, and never did I enjoy more robust health. The animals in a state of nature I never found to be fat, except those prohibited to be eaten by the Mosaic law, although the production of the whole country was at all times before them. The people who lived on them, far surpassed those who dwelt in the low cultivated countries for strength of body and vigorous intellects, and the Indians assured me that the animals were scarcely ever diseased, except from the use of bad water. My father, who was of a scorbutic habit of body, was advised to live chiefly on a vegetable diet, which was attended with the most happy effects. Although born inheriting his disorder, yet by living almost entirely on butter, eggs, oatmeal, barley, flour and vegetables till fourteen years of age I became healthy.

It must be remembered that all these things were of the best quality and the cattle perfectly sound. I mention this circumstance for the encouragement of my patients to persevere, as well as of parents, to bring up their children in the same way; and can assure them that when I left Scotland at twenty years of age, there were few men who could surpass me for vivacity of spirits, agility, and strength of body and mind, which enabled me, by the blessing of God, to bear up under the most trying difficulties, so much so, that were the checquered history of my life to be laid before the public, it would be considered rather a work of fiction, than of truth. When I commenced the use of London butter and the fat of meat, the whole mucous membrane became inflamed to a great degree, accompanied with fever, severe cough and expectoration; medical aid was called in, and I, of course, was bled and mercurialized to perfection. On my recovery from this attack I grew very corpulent, and in proportion as that *increased*, my strength of body and mind *decreased*, and in eighteen months I was so much debilitated, that my sight, hearing and memory, became impaired to an alarming extent. When the inflammation of the mucous membrane had in some measure ceased, the points of the absorbents were so corroded by the fat, impregnated with the poisonous qualities of the ranunculus and mercury, that the grosser particles of the food were readily absorbed and taken up into the system, by which I became as it were, affected with an oily dropsy, and lost two-thirds of my natural strength; the fibres of my stomach and intestines were very much relaxed, the several secretions necessary for digestion partially suppressed, by which the undigested food produced an uneasy weight in the stomach, and degenerating into putrefaction, became at first acid, then rancid, causing the most violent irritation in all the digestive organs, acrid eructations after eating, and a constant tendency to flatulence.

Dr. Mason Good observes "Fat is accumulated by diminished perspiration, as it is also by the aliments fed on, and from Idiosyncrasy. It is the basis of Steatomatous tumours and contains Sebacic acid which acts readily on many metals, as lead, copper, and iron." The evils resulting from a large increase of fat, are also that the play of the different organs

upon each other is impeded, the pulse is oppressed, the breathing laborious; there is an accumulation of blood in the head, a general tendency to drowsiness, and a perpetual danger of apoplexy.

Dr. Cullen says, "the use of oil and butter is almost as universal, and as necessary as that of the *farinacea*. They give an aliment which approaches most to that obtained from animal food. They give a more dense elastic blood, and probably too a more *putrescent* one than vegetables. Their visciduity also remains in some degree in the blood, vessels," on which account he mentions them under the class of medicines. Dr. Russell in his "Natural History of Aleppo" tells us "that in certain seasons, when they use a great quantity of oil there, they are then disposed to somewhat of fever with remarkable infarction of the lungs, which symptoms wear off on retrenching the use of oil." Oil, as an aliment, is very difficultly perspired, and with regard to butter, it has always a quantity of animal mucilage mixed with it, and hence is easier miscible with water. But although it receives consistence from the mucilage and somewhat of miscibility with water, and thus more easily digested, yet from this very mixture it is more rancescent and does not keep so long fresh as oil, and hence produces disorders in the *primæ viæ*. Dr. Buchan's article on butter, the result of most extensive experience and acute observation, is so correctly drawn, that I cannot refrain from introducing the whole of it, and can add my testimony, that the diseases are becoming more inveterate every succeeding year, the distressing effect of the general use of butter produced from a corrupt soil.

"It has been said," writes the Doctor, "that the English have a thousand religions, and but one sauce. It must be allowed that they use butter with almost every kind of food. Butter, though a good article of diet, may be used too freely, and in this country, I am convinced, that is the case. To weak stomachs it is hurtful, even in small quantities, and, when used freely, it proves prejudicial to the strongest.

Butter, like other things of an oily nature, has a constant tendency to turn rancid. This process, by the heat of the stomach, is greatly accelerated, insomuch that many people,

soon after eating butter, complain of its rising in their stomachs, in a state highly disagreeable. Oils of every kind are with difficulty mixed with watery fluids. This is the reason why butter floats in the stomach, and rises in such an unpleasant manner.

Persons afflicted with bile should use butter very sparingly. Some sceptical authors doubt whether or not aliment of any kind has an effect on the bile. One thing, however, is certain, that many patients, afflicted with complaints which were supposed to be occasioned by bile, have been completely cured by a total abstinence from butter.

The most violent bilious complaints that I ever met with, were evidently occasioned by food that became rancid on the stomach, as the cholera morbus, and the like. Nor can such complaints be cured, till the rancid matter is totally evacuated by vomiting and purging.

But supposing butter did not possess the quality of becoming rancid on the stomach, it may, nevertheless, prove hurtful to digestion. Oils of all kinds are of a relaxing quality, and tend to impede the action of digestion. Hence the custom of giving rich broths and fat meats to persons who have a voracious appetite.

The free use of butter, and other oily substances, not only tends to relax the stomach, and impede its action, but to induce a debility of the solids, which paves the way to many maladies. In a country where two-thirds of the inhabitants lead sedentary lives, a debility of fibre must predominate. Whatever increases that debility, ought to be avoided.

Children without exception, are disposed to diseases arising from relaxation. Butter, of course, ought to be given to them with a sparing hand. But is this the case? By no means. Bread and butter constitute a great part of the food of children, and I am convinced that the gross humours with which they are frequently troubled, are partly owing to this food. As children abound with moisture, bread alone is, generally speaking, better for them than bread and butter.

I have been astonished to see the quantities of butter eaten by gross women who lead sedentary lives. Their tea-bread is generally contrived so as to suck up butter like a sponge. What quantities of crumpets and muffins they will

devour in a morning, soaked with this oil; and afterwards complain of indigestion, when they have eaten what would overload the stomach of a ploughman. Dr. Fothergill is of opinion, that butter produces the nervous or sick head-ache, so common among the women of this country. As a proof of this, it is often cured by an emetic.

To some of the leaner farinaceous substances, as the potatoe, and the like, butter makes a very proper addition; but eating it to flesh and fish, of almost every description, is certainly wrong. The meat eaten in this country is generally fat enough without the addition of butter; and the more oily kinds of fish, as salmon or herrings, are lighter on the stomach, and easier digested, when eaten without it.

Butter is rather a gross food, and fitter for the athletic and laborious, than the sedentary and delicate. It is less hurtful when eaten fresh than salted. Salt butter certainly tends to induce skin diseases, and I am inclined to think, the free use of it at sea may have some share in bringing on that dreadful malady, so destructive to our brave sailors, the *sea scurvy*.

There is a method of rendering salt butter less hurtful, but it seems not to be known in England. What I mean is, to mix it with an equal quantity of honey, and keep it for use. In this way it may be given to children with greater freedom. In North Britain, this method of mixing butter with honey is well known; and, from a common proverb, I take the custom to be very ancient.

Butter, in itself, is not near so hurtful, as when combined with certain other things. For example: bread made with butter is almost indigestible, and pastries of every kind are little better; yet many people almost live upon pastry, and it is universally given to children. It is little better, however, than poison, and never fails to disorder their stomachs. The fond mother cannot pass a pastry-shop, without treating her darling boy with some of the dainties, and then wonders how he got the cough, or colic.

I have known a man seemingly in perfect health, who, by eating a pennyworth of pastry, as he passed along the street, was seized with such an asthmatic fit, that he was obliged to be carried home, and had nearly lost his life. This occurred

whenever he inadvertently ate any thing baked with butter.

Every thing that proves very injurious to health, ought, as far as possible, to be prohibited, by laying a high duty upon it. A duty on pastry would be serving the public in more respects than one. It would save many lives, and lessen some tax on necessities.

Cheese, as a diet, is likewise injurious to health. It should never be eaten but as a dessert. It occasions constipation, fires the blood, and excites a constant craving for drink. It is very improper for the sedentary, and hardly to be digested even by the athletic.

If men will live on dry bread, poor cheese, salt butter, broiled bacon, and such like parching food, they will find their way to the ale-house,* the bane of the lower orders, and the source of half the beggary in the nation."

Nothing can exceed the truth of the above statement, and it is astonishing that after so comprehensive and complete a review has been taken of the destructive effects of butter, by so learned and distinguished a philosopher, that the attention of Parliament has not been drawn to the subject, nay, that the whole nation has not been aroused to a sense of the impending danger.

From the various experiments which Linnæus made, by feeding cattle on two hundred and forty different vegetables, to ascertain which of the different species of grasses, clovers and other herbs, produced the best milk, cream, butter, and cheese, what a light was thrown upon the subject. Wishing to put it to the test I made experiments on fifty of the most select grasses and clovers, and found a great difference in the quantity and quality of the milk, cream, cheese and butter; and I am convinced that butter produced from one genera of plants, as enjoined by Moses, would be a great luxury and perfectly congenial to health. A superabundance might be raised for home consumption, and from four to six millions sterling worth yearly exported to the different countries where British Commerce has extended, but I will revert to this subject when treating of Holland.

In my work "New Medical Discoveries" published in

* The gin-shop is now substituted for the ale-house, that being the poison generally preferred by "the lower orders," at the present day.

1829, I have endeavoured to point out the errors of the present system of agriculture to a considerable extent, and having made a tour through Scotland and Ireland in 1830 and 1831, I published also the result of my observations in a treatise, "On the Causes and Effects of Inflammation, Fever, &c.," with an exposition of the erroneous views generally pursued in most countries both in Europe and America in regard to agriculture, particularly in England, although there are some honourable exceptions. The great object of the farmers is to top dress the land with recent manure and raise their sheep and bullocks to the largest size in the shortest period. In most parts of England they have selected a breed of sheep, that they can raise to a considerable size the first, and to a full size the second year, bloated up with acrid and corrosive fat and but little lean. When the sheep and bullocks are turned into their feeding ground, which is covered with the ranunculi and all kinds of poisonous weeds, they will swell up like monsters from the mucous membrane of their whole body becoming diseased; the brain is generally very much affected. A learned Doctor once visited his uncle on the south coast, and on going into the pasture lands, he found the sheep so burthened with acrid fat, and their brains so muddled by it, that he declared they were all idiots, for they had not sufficient sense to keep themselves out of his way. Can we wonder then at the increase of insanity among mankind, when we consider the medical and agricultural policy pursued generally throughout the country.

When at Brighton two years since, an opportunity was afforded me of meeting an eminent physician there, who remarked, that he had closely watched the numerous cases of disease in that town for fifteen years, and had found them becoming more inveterate every year, until they had completely baffled all medical skill. He observed, that I should indeed be a benefactor to mankind, could I but point out the cause of the evil, and devise some plan of arresting its progress. The opinion I gave was the one previously adduced, that the whole was the result of the bad medical and agricultural policy; and referred to the diseased state of the stock, as a proof of my assertion. Lord Western could hardly believe that the newspaper accounts were correct,

but knowing the best mode of setting the question beyond the possibility of a doubt, would be to apply to the butchers themselves, a number of the party accompanied me to Mr. Davis and enquired of him, what number of sheep were diseased on an average of seven years preceding 1835, and slaughtered at Brighton, in comparison to the sound; his answer was seven out of every ten. I observed to him, it had been told me, that the sheep raised on the Downs were generally sound, which he said was the fact, but the graziers would not send them to market in that state, preferring to pasture them in Romney Marsh and other feeding grounds first, by which they became diseased, and oftentimes their livers were in such a condition, that they could not offer them for sale: so that we cannot wonder at the want of success attending the medical practice at Brighton, nor any where else, when such a line of policy is pursued.

The means resorted to for the alleviation and cure of diseases only increase their virulence, for to administer mineral poisons, particularly mercury in an acid state of the stomach, shews a complete ignorance of the economy of life. I have frequently found stomachs diseased from taking a dose of calomel, for from its coming in contact with the highly concentrated acid in the stomach, it has all the pernicious effects of corrosive sublimate, inflaming the whole course of the mucous membrane, powerfully contributing to produce scrofula with its long train of calamitous diseases, particularly consumption, and all other affections of the chest and lungs; but when taken in an acrid and putrid state of the stomach, produced from the use of the fat of meat and butter, the cattle having been fed on the rannunculus and other acrid poisonous vegetables, then it will generate a cancerous habit of body in all its awful forms, making such persons a perfect nucleus for the *Fasciola Hepatica* or Fluke worm to feed on, which is the true cause of cancer.

A large number of our cattle and sheep are affected with cancer in the liver, particularly the milch cows, the butter made from them, therefore, is a certain poison. Various medical authors have supposed fat to be nutritious, but to come to such a conclusion, they must have been superficial observers of the animal economy. The farmers generally

hurry off to the slaughter-house, those bullocks and sheep that are overloaded with fat, to prevent their dying a natural death, for a violent relaxation of the bowels would speedily take place and carry them off in a fortnight, indeed the change which occurs in the cellular and adipose membrane is so great, that their bodies might form a good substitute for a lantern. I have constantly observed that fat animals perish in the extremes of heat and cold; the heat melting the oil, and their bodies running off in a state of fusion: in cold weather, the internal heat is not sufficient to prevent the condensation of the fat, and consumption of the lungs follows. At market on a cold frosty morning, it is distressing to hear the coughing of the poor animals, while the acrid fat is seen passing off in purulent matter. I met with a number of farmers on board of a Margate steam-boat lately, who perfectly agreed with me that the policy of breeding so long from the same stock was bad, as they were more subject to disease and liable to become bloated with fat, which was generally cut off by the butchers and thrown into the soap and candle tub, and to make the most of, was but unprofitable. They considered the best plan was to select animals which made the most lean and but little fat; hence the great propriety of the Mosaic law against the use of it.

The next prohibition is in the 7th chapter of Leviticus, and 26th and 27th verses. "Moreover ye shall eat no manner of blood, whether it be of fowl or of beast, in any of your dwellings." "Whatsoever soul it be that eateth any manner of blood, even that soul shall be cut off from his people." Also in Genesis, chap. ix. 3rd and 4th verses, "Every moving thing that liveth, shall be meat for you, even as the green herb, have I given you all things." "But flesh with the life thereof, which is the blood thereof, shall ye not eat." Again in Deuteronomy, chap. xii. 2nd and 3rd verse "Be sure that thou eat not the blood, for the blood is the life, and thou mayst not eat the life with the flesh." We have also the final command in Leviticus, chap. iii. and 17th verse, "It shall be a perpetual statute for your generations, throughout all your dwellings, that ye eat neither fat nor blood." Notwithstanding this boasted age of scientific acquirements, the above prohibition is little understood.

Dr. Mason Good was fully aware of our imperfect knowledge of the change which the blood undergoes in passing through the lungs necessary to support life ; and in his " Study of Medicine," vol. i. p. 443, he writes thus, " we see the blood conveyed to the lungs of a deep purple hue, faint and exhausted by being drained in a considerable degree, of its vital power ; or immature and unassimilated to the nature of the system it is about to support, in consequence of its being received fresh from the trunk of the lacteals. We find it returned from the lungs, spirited with newness of life, perfect in its elaboration, more readily disposed to coagulate, and the dead purple hue transformed into a bright scarlet. What has the blood hereby lost? How has this wonderful change been accomplished ?

These are questions which have occupied the attention of physiologists in almost all ages, and were as eagerly studied in the Greek schools as in our day. To the present hour, however, they have descended in a mantle of cimmerian darkness ; and though the researches of a more accurate chemistry have disclosed volumes of facts, heretofore unknown, and the ingenuity of able theorists have laid hold of them and applied them to an explanation of this curious subject in a great variety of hypotheses, I am afraid we are still almost as much at sea as ever ; and that there is no inquiry in the whole range of physiology in a more unsatisfactory state than that concerning the ventilation of the blood in the lungs."

No set of experiments has yet led to any established doctrine upon the subject, " and hence" he adds " though we have an abundance of facts and experiments upon the subject before us, and an abundance of speculation in respect to them ; the *COMMERCIUM MENTIS ET RERUM*, as Lord Bacon elegantly expressed it, has not hitherto led to any established doctrine, however creditable it has been to the industry and ingenuity of those who have engaged in it." I cannot refrain from making one more extract from the above work, in vol. ii. p. 34, Dr. Good thus expresses himself, " upon the whole however, we cannot but regard the blood as in many respects the most important fluid of the animal machine : from it all the solids are derived and nourished, and all the other fluids

are secreted : and it is hence the basis or common pabulum of every part. And as it is the source of general health, so it is also of general disease. In inflammation it takes a considerable share, and evinces a peculiar appearance. The miasms of fevers and exanthems, are harmless to every other part of the system, and only become mischievous when they reach the blood : and emetic tartar when introduced into the jugular vein will vomit in one or two minutes, although it might require perhaps half an hour if thrown into the stomach, and in fact does not vomit till it has reached the circulation. And the same is true of opium, jalap, and most of the poisons, animal, mineral and vegetable. If imperfectly elaborated or with a disproportion of some of its constituent principles to the rest, the whole system partakes of the evil, and a dysthesis or morbid habit is the certain consequence ; whence tabes, atrophy, scurvy, and various species of gangrene. And if it become once impregnated with a peculiar taint, it is wonderful to remark the tenacity with which it retains it, though often in a state of dormancy or inactivity for years, or even entire generations. For as every germ and fibre of every other part is formed and regenerated from the blood, there is no other part of the system that we can so well look to, as the seat of such taints, or the predisposing cause of the disorders I am now alluding to ; often corporeal, as gout, struma, phthisis ; sometimes mental, as madness, and occasionally both, as cretinism. It is hence the blood has been supposed to be alive : a belief of very high antiquity, and which has been warmly embraced by Dr. Harvey and many others of the first physiologists of modern times. It was a favourite opinion of Mr. John Hunter, and runs through the whole of his doctrine, ‘ that the blood has life, is an opinion I have started above thirty years, and have taught it for near twenty of that time in my lectures.’ ”

From the above may be learnt the unsatisfactory state of our knowledge of the properties of the blood. That many diseases may be traced from one generation to another is true, and also that it arises from a peculiar taint which the blood receives, imparted to it solely by the food taken into the system, for I think it may be laid down as an axiom,

that the quality of the blood, depends entirely upon the quality of the food and drink. The transmission of disease is clearly pointed out in the fourth commandment, where it is written, "For I the Lord thy God, am a jealous God, visiting the iniquity of the *fathers* upon the *children* unto the third and fourth generations, of them that hate me." The command is too clear to need comment. Hence it would appear that the perpetrators of crime or breakers of the law, entail their diseases upon posterity, and it would take three generations of good nursing, before they could be brought back to the constitution of body and mind enjoyed by their progenitors, previous to the law being broken; however the door of mercy is still open for those who will repent, for it is added, "Shewing *mercy* unto thousands of them that love me, and keep my commandments." The above denunciation was completely verified in the Almighty withdrawing his divine protection from the Jewish nation, and leaving them to the lusts of their own will; when they introduced the heathen worship and agricultural policy, which was followed by their eating things sacrificed to idols, and blood.

By the neglect of agriculture, the flocks and herds became diseased, and from the use of them as food, their blood as a natural consequence became impure, by which their passions and propensities were stimulated to madness. They launched out into every species of crime, ever encreasing in enormity, until the reign of Jehoram, as described in 21st chapter, 2nd Chronicles, who summed up the whole, and fell a victim to his own folly and wickedness. From the wanton trampling on the laws and ordinances of God by the Jews, until our Lord's appearing on earth, it was only a few He could reclaim, for they had arrived at the most refined pitch of iniquity; hence we find his denunciations of the Scribes and Pharisees, the destruction of Jerusalem, and the ills that, according to Josephus, came upon them forty years after. They became the aggressors and destroyers of one another, verging on insanity, fulfilling the predictions of Moses, the Prophets, and lastly of our Lord, who, on observing the approaching ruin of Jerusalem, from the total disregard and neglect of his laws, "Wept over it, Saying, if

thou hadst known, even thou at least in this thy day, the things which belong unto thy peace! but now they are hid from thine eyes."*

I am sorry that John Hunter, a man possessing such extraordinary talents, and a Scotchman, should have talked of having "started" the opinion of the blood being alive, at such a recent date, while if he had studied the Bible, he would have found that it had been promulgated for more than three thousand years before, and that the Jews were forbidden to eat of it, on pain of death. Not having read in any other work but that of Linnæus, any thing concerning the *cause* of the blood becoming diseased, I will transcribe his opinion upon that most interesting subject, from my work previously referred to.† "The Linnæan principles of Physic suppose the human body to consist of a *cerebrose, medullary* part, of which the nerves are so many processes (and which is commonly called the nervous system), and a *cortical* part, including the vascular system; the former being the animated part, or that in which the sentient moving principle peculiarly resides, is considered as deriving its nourishment from the subtlest fluids of the vascular system, and its energy from an electrical principle inhaled by the lungs.

Farther he supposes the circulating fluids to be capable of being *vitiated* by substances which he considers either as acescent, or as putrid ferments; the former acting on the serum, and being the exciting cause of critical fevers; and the latter acting on the crassamentum, and exciting phlogistic diseases.

The exanthematic class are supposed to be excited by some external causes, which medical men call contagion, and which he pronounces to be animalcula.

From the incessant attrition of the cortical or vascular system, it requires perpetual reparation: this is to be effected by an appropriate diet. From an improprie diet or regimen, originate most of the diseases of this part of the system; and these are to be remedied by sapid or bitter medicines, as those of the medullary system are by olids or strong smelling. Hence arises our authors general divisions of all

* Luke, chap. xix. 41st and 42nd verses.

† "On the causes and effects of Fever, Inflammation, &c." Page 6.

medicines, according as their sensible qualities are discoverable to the taste or smell. The *sapida* or bitter, according to his theory, act particularly on the cortical part as the *olida* do on the medullary or nervous system. He seems to have had some peculiar ideas with respect to number, both as to the divisions into which he supposed these two grand classes of medicines naturally to resolve themselves, and as to diseases, which they appeared to him calculated to cure. It was his opinion that nature acts *numero quinario** as he mentions in his "Diary."

The above is the only complete and practical doctrine, hitherto published, and is perfectly in unison with the laws of nature; but I have lived at a time, when, from the highly corrupt state of the soil, particularly the pasture lands, they being entirely covered with the various species of *ranunculus* and numerous other highly acrid and corrosive plants, greater havoc will be produced amongst animals and men than was ever known before in the history of the world. It certainly never entered the imagination of Linnæus that such a policy would be pursued in any quarter of the globe, and that encouragement would be afforded to the growth of plants, possessing such acrid and corrosive qualities, that the stock should be allowed to eat them, and above all, that they should serve man for food. For thirty-five years past, I have observed this policy, and carefully watched its destructive effects, and will fearlessly assert that it is the means of producing more physical and moral evils in Europe and the United States of America, than all the ills of life put together.

To Linnæus's theory, the only rational one, I would add, *acrid* ferments; in which I am fully borne out by Orfila, in his invaluable work on Toxicology. I have translated his *Materia Medica*, and hitherto acted on his principles, which have been my chief prop, and to which may be attributed my great success in practice for these twenty years. It requires no prophetic power to reason from cause to effect, and if we may judge from the pasture fields last spring and summer, and the hay being well made, a sad effect will be naturally produced on the stock, milk, butter, and cream;

* A fifth number.

and on this day (the 1st of November, 1837), the fields are literally overwhelmed with the ranunculus, and covered with the animal's manure, the grass growing over which they refuse to eat, until driven to it by hunger. We may reasonably expect therefore, influenza, bronchitis, and diseases of the mucous membrane to a most fearful extent; scrofulous affections, in all their inveterate forms, consumption, asthma, fluor albus, chlorosis, typhus and scarlet fevers. The contagious diseases of children, and all cutaneous complaints will be much aggravated; as well as gout, erysipelas and acute inflammation. All these diseases are engendered or much aggravated through the influence of the blood, being poisoned by the food; for the feeding upon the flesh of diseased animals and blighted vegetable substances, has been ever found a most powerful predisposing cause of pestilence, and always adequate to produce great mortality, as instanced in the *Gangrenous Ergotism*, or mortification produced by the diseased state of the rye, mentioned by Dr. Adam Neale in his work on "Animate Contagions," * from which I extract the following incontrovertible proofs.

"This disease was known in France, in some provinces as far back as 1630, according to the testimony of Dr. Thuillier, physician to the Duke of Sully, prime minister of Henry IV. In 1650, 1670, and 1674, it raged in Aquitania, in Sologne, and in the gatinois district; and 1674 near Montargis. The first symptom was a numbness of the legs, then a pain with slight swelling, devoid of inflammation, to which succeeded rapidly, coldness, lividness, mortification and dropping off of the limbs. At Sologne there was no fever, and the pains were slight. No remedies were applied, but the nose, fingers, hands, arms, feet, legs and thighs sphacelated spontaneously and dropped off.

"In 1695, Dr. Brunn saw at Augsburg a woman labouring under a spasmodic disorder and a gangrene of the hands, from eating spurred rye, and was told by her attending surgeon who had been previously obliged to amputate one of her feet, which had also mortified, that it was owing to eating such vitiated bread-corn that so many of the inhabitants of the Black Forest were afflicted not only with convulsions, but

also with mortification of the extremities," again " Mons. Salerne has described another similar epidemic visitation, of which the following were the principle phenomena.

1. It attacked persons of both sexes and all ages.
2. It did not spread higher up than the knee-joints ; whereas in the preceding year, a boy ten years old had lost both his thighs, and his brother fourteen years old, had lost the leg and thigh of one, and the leg of the other side, and both had expired after twenty-eight days of suffering.
3. Some recovered from these sphachelations of their limbs, but they seldom lived long thereafter.
4. Amputation appeared only to accelerate the fatal termination of the disease.
5. Out of one hundred and twenty patients, scarcely four or five recovered, all the rest expired within six months.
6. The blood was so viscid, that it would hardly flow from their veins.
7. An inflammation of the skin denoted a suppuration in that part.
8. There was no occasion either for a tourniquet or the application of ligatures to the arteries after amputation.
9. In Sologne, which is a marshy country, the disorder commonly attacks the feet.
10. As from the commencement of the malady in all cases, their intellects are more or less impaired ; the patients were quite incapable of giving any account of their feelings ; their countenances were yellow, and they became so much emaciated that they resembled dead bodies.

11. The disease was by no means contagious." *

The above is certainly a melancholy account of the pernicious effects of diseased grain on the body. It appears to infect the gastric juice with a poisonous taint, producing acid, acrid and putrid ferments in the stomach, changing the nature of the chyme and chyle, and communicating its noxious properties to the blood ; by which the whole of the vital organs become affected. Linnæus mentions three hundred and twenty-six species of disease, most of them produced by the blood becoming corrupted, except those caused by

animalculæ. There was an awful visitation in 1811 and 1812 produced by the ergot, when upwards of twenty thousand persons died, principally in the northern part of the State of New York and Vermont, and it was then I found out the true cause of the mortality, for an account of which, and also for a description of the cause of the cholera morbus in Savannah, I refer to my work, previously quoted.

I have lately heard from the public journals, the alarm sounded of the malignant cholera being in London, and suppose the bugbear of contagion will again terrify the people. In 1832 I was the only person who declared at the Public Meeting at the Egyptian Hall that it was *not* contagious, but arose entirely from mildewed grain and ergotted rye; of course in this opinion, not rashly formed, I was opposed by a whole host of interested men, but Dr. Serle who had witnessed the disease in India for many years, fully corroborated my statement, and strenuously advocated my cause. To prove the correctness of my position, the Board of Health, from which had emanated the bright idea of its being contagious, declared at the end of nine months that it was *not* so, and that all the remedies which had been administered, were of no avail; certainly a very consolatory conclusion, after having been the means of closing the Port of London, and extracting more than two millions of money from the pockets of the inhabitants for drugs, and causing a real loss to the people of probably from twenty to forty millions more, independently of the immense loss to the country at large from the suspension of commerce. This was the consequence of a few men, who were ignorant of the *cause* of the disease, proclaiming it to be a *new* disorder, whereas we read in Scripture of Jehoram dying of the "sore disease,"* which, in the Hebrew tongue, means the cholera, as interpreted to me by a Jewish Rabbi; it is further stated, that to those who neglected the law, it should be "of long continuance"† and the *cause* is mentioned in the early part of the same chapter, viz. "The Lord shall smite thee with a consumption and with a fever, and with an inflammation, and with an extreme burning, and

* II Chronicles, chap. xxi. verse 19.

† Deuteronomy, chap. xxviii. verse 59.

with the sword, and with *blasting*, and with *mildew*; and they shall pursue thee until thou perish."*

The drinking of gin, distilled from ergotted and mildewed grain is sure to produce cholera, and the blue colour of the skin is a true diagnostic of its being so, together with the rapidity with which it runs through the different stages. The Americans vulgarly called it the dry rot, from the resemblance of the skin to rotten timber. I have known many instances of persons who have drank a glass of gin and bitters in the morning, to have been numbered with the dead by noon. It is frequently recommended to females during the menstrual periods, if attended with pain, to take a little warm gin and water to relieve them, and cases have frequently come under my notice of the most temperate, falling victims in twenty-four hours, from the spirit being thus vitiated by the diseased grain. It was particularly fatal to the dissolute at such periods.

The Emperor of Russia sought the advice of the Emperor of China, to know what he should do in case the cholera extended to his dominions, he returned an answer, that no one in China had any cause to fear the cholera but prostitutes and drunkards, of whom he could readily spare four millions, and he should be thankful when the cholera came to cut them off, as no admonition could restrain them from their evil practices; a pretty fair proof that that sagacious ruler did not consider it contagious.

As the grain in this country is generally sound this year, so far as we can judge from the various reports, we have no reason to expect a visitation of the malignant cholera, unless it is near Newcastle, where rye is grown. The government would do well to have it inspected and if it should be found diseased, to destroy it, and prohibit the importation of rye and mildewed grain, which are the only means of keeping this country free from the cholera. That the English cholera will be prevalent I believe, and that in its severest form, the mode of preventing which is to plough up the fields and eradicate all the noxious plants. Now is the time for the landowners to look at their pasture fields, they will observe

* Deuteronomy, chap. xxviii. verse 22.

them covered with manure, the ranunculus and many other poisonous weeds. The whole pauper population of the three kingdoms could be beneficially employed, in bringing the land to a proper state of cultivation, which would render the country healthy. This kingdom is capable of containing one hundred millions of people and supporting them in affluence, when overpeopled the surplus might be sent to the colonies; and by encouraging the emigration of good farmers instead of weavers and gewgaw makers, who are generally bad settlers, the commerce of the country would be materially increased.

After having given a long dissertation on the fat and blood, and shewn how inimical their use is to the well being of the human race, I come to those animals which according to the Mosaic law are permitted to be eaten, viz., Leviticus, chap xi. verse 2, "Speak unto the children of Israel, saying, These are the beasts which ye shall eat among all the beasts that are on the earth." (3) "Whatsoever parteth the hoof and is cloven-footed, and cheweth the cud among the beasts, that shall ye eat." The wisdom of this important permission is one of the most beneficial to mankind, but so far as I know it has been entirely overlooked.

The parting of the hoof in ruminating animals is a wise provision, and produces the most admirable effect of carrying off the poisonous substances from the body, as was foreseen by the Omniscient Creator of the Universe. There is a prodigious discharge from between the hoofs, particularly of those animals feeding in wet situations; while the noxious gases and matter pass off, where it is most wanted, their bodies are so contaminated with eating acrid and corrosive plants, that the aphorism of Linnæus on locality is true to the letter, he observes, "A *dry* place renders plants *sapid*; a *succulent*, more insipid; a *watery* place renders them corrosive. Most aquatic plants are acrid and corrosive, as the ranunculus, calla nymphaea, sium, phillandrium, cicuta, persicaria, armoracea, sisymbrium. Vernal flowers from this cause are mostly acrid and corrosive."

In order to bring these important truths home to the ideas of the common sense portion of mankind, I will refer

to the mode pursued by the farmers, who raise the great clumsy unwieldy brutes of horses for brewers, coal merchants and others. They turn the young horses into the feeding ground before they offer them for sale; they swell all over the body, and also in the legs, a running of matter takes place at and above the heel, attended with excruciating pain, so completely are they poisoned by the ranunculus and other plants. The farriers are obliged to shave and blister their legs so as to draw off the noxious matter, and bandage them to bring them down to a reasonable shape. Although the bullocks are fed in the same way, and their bodies become swollen; yet their legs are never affected, in consequence of the discharge of saliva from the mouth, and the matter and gas from between the hoofs. But when the land has been top dressed with manure, more particularly that collected from the streets, the discharge is so copious that it soon destroys them, by what the farmers call the foot rot. During the time they are in the feeding ground, the depraved saliva flows to a great extent, it is sometimes so acrid as to blister like cantharides; and after these great horses are reared, they are not fit for draught; one of the half cross hunter breed with strong muscles and bones, such as are to be seen in the drays at Liverpool and Greenock, would work them to death on half the food. I have frequently opened these monsters, and generally found their livers swollen to a prodigious size and filled with tumours; they are in fact, the most unprofitable stock that can be raised on a farm. When bullocks are reared in such situations, in consequence of a portion of the acrid saliva being intimately mixed with the food in ruminating animals, their flesh becomes so tender from the inflammatory nature of their food that an inflammatory habit of body is communicated to all those who live on it, particularly the mutton. The tenderness produced on the whole body politic from the inflammatory diathesis and the use of mercury, has been the means of increasing the cases of rupture, to an extent beyond any thing hitherto known. The use of the blood of animals while pasturing on the feeding grounds, such as Romney Marsh, Sandwich Flats, and other low damp situations is highly inflammatory, for

the ranunculus has actually been sown there ; and I am informed that large quantities of that poisonous weed are regularly sent to Mark Lane, where the farmers buy it for that purpose.

Moses clearly foresaw the diseases generated by the use of animals that chew the cud, but divide not the hoof, as the coney and hare.* They are always to be avoided in hot climates, having so much down they are very subject to vermin, and in order to expel them, they eat poisonous plants, and if used as food when under their influence, cholera morbus will be the consequence. Another evil is, in Spring they eat all manner of poisonous plants, particularly the lactescent or milky kinds, which abound in warm climates ; Linnæus observes, that they are fond of buck-thorn, which is sure to bring on cholera in those who eat them. It is only late in the fall and winter when the latescent plants die down, that the coney and hare are fit for food and can be used with safety. I have known many persons to have been brought nearly to the gates of death from eating them in the spring, in consequence of the acrid food they are fond of ; it makes them timorous and lustful, a fine emblem of mankind, or those nations who live on much acid and acrid food, from which they become the oppressors and destroyers of one another, and sink never more to rise.

It is evident to the most superficial observer that the salivary glands have been appointed, in the admirable construction of the human and animal mechanism, to perform two important purposes in the animal economy, first, the healthy secretion, from the fluids of the body in the healthy state, by combining with the food in the act of chewing or masticating it. If the food be well masticated, a larger portion of the saliva will be combined with it, and digestion go on much more rapidly, contributing to the general health. Healthy saliva has been noted for its antiseptic and healing powers in all ages.

The important use of saliva in ruminating animals has been lost sight of ; they have the power of secreting the poisonous effects of vegetables, particularly cows and goats.

* Leviticus, chap. xi. verses 5, 6.

When the bullocks were turned into the feeding grounds, which are generally covered with poisonous plants, I have observed them to swell all over the body; when they laid down, the saliva flowed most copiously, their mouths were generally very sore and frequently bleeding, sometimes they died. On examining their mouths I have found them blistered to a great extent, and in collecting some of the saliva, it possessed the same power as cantharides: thereby a large portion of the poisonous properties of the plants, passes off by the salivary glands in the act of ruminating, which will render their bodies much more healthy, when used as food, than those animals who do not chew the cud.

I have witnessed the effects of that invaluable plant the *Lobelia Inflata*, where there are many acrid plants among the hay, which is frequently the case in low, moist or swampy places in America. The animals being fed during the winter, on such dry acrid food, the saliva is all combined in the act of ruminating with the food, and carried into the stomach; nature makes a grand effort and throws off the acrid substances by the skin, hence the pores become inflamed and corroded, forming a scaly incrustation over the whole body, called dandriff, sometimes ulceration takes place and they have a loathsome smell.

When the cattle are turned out in the spring, I have observed them search round the field for the *Lobelia*, and after eating some of it, they would become thoroughly salivated. In a few days a desquamation or scaling off over the whole body would take place, and a rapid return to health would leave their hair shining like silk or japan. Many of the young stock would eat too much of it and be poisoned, and the farmers would say, that they died of the *slavers*. I have dissected those that died, but found no ulceration in the mouth, stomach or intestines, though when they have eaten it in large quantities, it has brought on lesion or tearing of the nervous system. Observing these effects, I did not venture to give it to the human species, until the year 1816, when informed by the Indians of its salutary effects, I administered it in appropriate doses, which I believe was the first time it was made known to the American public. They informed me that when the cattle were suffering under the influence of the

Lobelia, by giving them cabbage or any of the brassica tribe of plants, they would soon be relieved.

The Indians use it combined with the eupatorium and ilex cassine, as one of the best emetics for cleansing the stomach and restoring the healthy action of the secretion of glands, skin and kidneys; it is truly astonishing how quickly it effects this, and never fails to check fevers at the onset, when properly applied. But I must in the second place notice the morbid change which takes place in this secretion, and may be called depraved saliva. From the use of poisonous and acrid food, when under the influence of the irritating passions and especially of violent rage, it assumes a frothy appearance, and in many animals becomes poisonous; it is said to be so even in man himself. Nothing can be more loathsome than the constant secretion of acrid and nauseous saliva, producing the most disagreeable sensation and fœtor in the mouth, particularly after being salivated by that infernal drug, mercury; destroying the teeth and diseasing the bones, glands, muscles, nerves, inner coats of the blood-vessels, and the mucous membrane of every part of the body.

The fiend like practice of giving mercury to women after delivery, in order as it is said to stimulate the liver, cannot be too strongly deprecated. By the frequent sucking of the child, the mercury is attracted to the breast, which becomes salivated; the nipple is also so sore, that the mother is obliged to be held while the child sucks, and the lacteals of the breast being so inflamed, she is compelled to lay in the chair while the milk runs into and distends them. When they are filled, nothing can be more irritating and painful, the breasts are frequently covered with mercurial erythema, and the itching is intolerable, in fact, it beggars all description. But when we revert to its painful and destructive effects on the children, it is terrible indeed; I have seen them covered with mercurial erythema from three to ten months old, and the whole skin in one incrustation: screaming night and day, in a constant fœtid salivation, and tumours forming in the glands in various parts of the body attended with excruciating pain.

I will briefly relate a few cases that came under my notice. When giving a lecture on botany, as connected with the laws

of life and health, the late Dr. Hamilton and a number of clergymen being present, I took occasion to observe that the Jewish nation believed the diseases of children were produced from the mothers milk becoming corrupt in their stomachs; the Rabbies called the mothers to account for indulging their appetites with food prohibited by the law, and strictly enjoined on them what they should eat; but if they transgressed a second or third time, the children were taken from them, and they were sometimes punished according to the offence. I added my implicit belief in the wisdom of the law, knowing it to be founded on the inimitable decrees of the Governor of the Universe.

If we lived on healthy food and drink, such a thing as disease would be impossible, but if we live on diseased food and drink, a healthy and sane mind is impossible; indeed I stated my faith in the law to be so strong, that I could take children at the breast, affected with the most inveterate diseases, and cure them through the influence of their mothers milk. One of the clergymen remarked that if such was the case, the whole doctrine of vitality and assimilation, as generally taught in the schools for seventy years past, was a farce; and if I would consent to put it to the proof, patients should be procured for the purpose of vindicating the law; Dr. Hamilton was to be the judge. I was soon sent to one of the most frightful objects ever seen, a child about four years old; all the glands in his body were studded with tumours, and every bone affected and covered with mercurial erythema, his arms and legs were not thicker than my thumb, his head was larger than mine, and his eyes were more like those of a bull than any thing else; his bones were distorted, and he was in fact a monster to behold, so that I would not consent to give him any medicine, considering that if he were to live, he would be an hideous object. He was a fine child until four months after his birth, and his sister of eight months old was becoming affected in the same way.

During the time the mother's breast was salivated, she was ordered to live on mutton chops and porter, now in 1829 and 1830, eight-tenths of the sheep were affected with the rot, and of course the chops were rotten ones. All the children of the same family were diseased in the same way, and the

two given to me as test cases, independently of their bodies being affected with mercurial erythema, the bones of their heads were so diseased, and the smell so horrible, that when the mother and servants were washing them in the morning, they were frequently turned quite sick. Dr. Hamilton selected two cases of the worst description, knowing that if success attended my treatment of them, I could cure any of the diseases of children at the breast, and prove to demonstration the absurdity of the view which Dr. Cullen took of the subject. Having succeeded in curing them, on presenting them to the Doctor, he stated that Cullen's doctrine was entirely false, for by these experiments was clearly proved, the power which was possessed over the child through the medium of the mother, changing the most acrid and attenuated blood, as he observed, to the most condensed and healthy.

The Rev. Mr. Lugger placed his lady and child under my care at the same time; they were both affected with severe spasms, and I advised that a nurse should be procured for the child, and the mother's breast be drawn regularly. Mr. L. brought me every morning a phial of the mother's milk and that of one of the nurse's to compare, so that I might observe the change taking place. The nurse was a fine healthy Irish woman, and gave the best of milk, whilst the mother's was mingled with blood and matter from the use of that horrid drug mercury. I had cows fed on clover and a mash of bran and barley meal, with a portion of lime-water and salt every morning, and the mother lived on oatmeal porridge and milk, rice puddings, blanc-mange, batter and tapioca puddings, milk and water, fish, eggs, poultry, bread and milk; to correct the acidity and acrimony I gave to the mother antacids, also tonics and corroborants,* with saline purgatives to keep the bowels in a tranquil state. Her milk improved and in two months was as good as that of the nurse, and both child and mother were perfectly restored. Dr. Hamilton then acknowledged the doctrine of Cullen was no longer tenable, and said, when he was asked by him for his opinion; "Why do you apply a blister to the body? is it to create matter or extract that which previously existed in the

* See the list in my Translation of Linnæus's *Materia Medica*.

system?" to such home questions Doctor C. made no reply. He also told him, "if your vitality and assimilation is to convert every thing into good chyme, chyle, blood and milk, whence exists disease?" the Doctor was still silent, not being able to uphold his own bantling.

Mr. Liston in a lecture observes " I was well and intimately acquainted with Mr. Abernethy, and entertain a high respect for his memory. He was a great enthusiast in his profession and a good and persuasive writer; and a young surgeon not making proper allowance for this, would be led to suppose that all diseases incident to humanity could be controlled and rendered curable by the method he recommended. It is very simple and saves a world of consideration and thought. Some of his followers would have one believe that glandular enlargements, both internal and external, are removable by the long continued exhibition of mercury in small doses; nay that even *tumores mali moris* malignant growths, may thus be arrested in their progress and rendered innocuous. The time for more decided interference is thus permitted to elapse and the patient is *irritrievably lost*."*

With Mr. Lawrence's description of the injurious tendency mercury has on the system, I will conclude this part of the subject—he says " the effect of mercury often proceeds further than we wish, and indeed in many instances the remedy acts *prejudicially* on the system. It produces effects which are in themselves almost a disease, sometimes we may say disease of a serious kind, and such as to require prompt treatment. Sometimes the remedy acts very seriously on the mouth, producing excessive salivation; and I do not know a more deplorable condition, than that of an individual in whom this excessive ptyalism takes place. The tongue becomes swollen, excessively sore, excoriated on the surface and edges, and it presses against the teeth on each side, so that indentations of the teeth are observed on the margins of the organ. Sometimes it is so much swollen, that it actually protrudes from the mouth. The nose and the lips are enormously swelled and the whole face and head sometimes participate in it. The mucous membrane of the lips, cheeks

* See Lancet, January 10, 1835.

and throat, becomes inflamed, excoriated, sloughy, and excessively tender. There is at the same time a constant and profuse fœtid discharge of saliva from the mouth. This continues night and day, and almost prevents the patient from taking his rest.*

The above is a melancholy picture of the dreadful effects of mercury in depraving the saliva, and every fluid and organ of the body; various substances in the vegetable kingdom will produce a discharge of saliva, but being diffusible, their effects are soon over, and the system does not suffer from their administration.

The swine is also forbidden by the Mosaic law to be eaten, for "though he divideth the hoof and be cloven-footed, yet he cheweth not the cud; he is unclean unto you."† Of all the abominable feeding creatures the swine may be said to be the chief, it is more liable to disease, and entails more misery on the human race than any other animal; when in the fields it will root up and eagerly devour all kinds of poisonous roots, particularly the *ranunculus bulbosus*, and I have frequently observed the effect to be a severe attack of inflammation of the cuticle over their whole body, attended with swelling of the legs, and sloughing from the skin in bran-like scales, when they continue the use of such fiery food, the skin becomes permanently diseased, the glands enlarged and frequently discharge matter; they are in truth affected with scrofula, and are certain to communicate the disorder to those who eat them.

The Greeks called scrofula, the swine evil or swine swell, alluding to their enlarged glands. Cicero elegantly employs the term, as a metaphor in the phrase, *struma civitatis*, the scrofula or King's evil of the state: a very appropriate motto for Britain, as scrofula ramifies into a host of diseases, at least one half that have afflicted the people of this country, for since the farmers began to lay down their fields into permanent pasture, scrofula has increased beyond conception.

Leprous pork is very abundant in our markets, particularly the knacker or London fed. Moses was quite clear about the house being affected when the disorder was con-

* See *Lancet*, February 27, 1830, page 729.

† *Leviticus*, chap. xi. verse 7.

tagious, and as Linnæus was as explicit in his belief that all contagion is produced by animalculæ, I endeavoured to ascertain if there were any in the swine when affected with leprosy, and happily succeeded in discovering that an insect was the true cause of it, which contaminated the clothes and even the house as I have observed both in the Southern States of America and the West Indies. In the clothes and styes during very hot weather, these insects make a dirty green or red film over the stones wherein they nestle, and when the leprous swine go into a pond to cool themselves a lead-coloured scum floats upon the water, underneath which, the insects may be seen in myriads, with the aid of a common pocket lens. I have observed them on the negroes clothes, and they may be seen to great advantage by taking a piece of the flesh and skin of a leprous swine, putting it into a crystal bottle, paint the one side dark, set it in a warm place, out of the sun, and the same kind of insect seen in the water will be distinctly visible.

The swine from being such foul-feeders, are liable to many diseases caused by insects, which may be regarded as contagious, independently of the noxious gases contained in their flesh, aggravating most diseases and engendering many. For one of the strongest proofs, of the highly destructive effects of such foul-fed pork, that can be adduced, I will refer to the county of East Lothian, the place of my nativity. Fifty years since, it was one of the healthiest spots in the world, there were but two doctors in the county and they were not half employed; one turned farmer and was among the best in the county. The inhabitants used very little animal food; the middling and lower classes scarcely any; they were very religious, believing every thing in scripture to be true, and because Moses forbade the use of pork, most of the farmers would as soon have seen Belzebub on their farm as a swine. At that time I scarcely ever saw a pig in Haddington market, until some of the higher ranks visited England and found the people rioting on pork, and persuaded the mechanics to get pigs, and they would consume all the offal of the house; but such was their dislike to that animal, that the clergy were compelled to preach that the eating of pork was not sinful before the lower orders would use it, many of them, how-

ever, got pigs, and confined them in small styes just large enough for them to turn round, in a yard about six feet square, and fed them with the offal of the garden and house, this they would trample on with their own filth and then eat it, which contaminated their bodies and produced leprosy in the county to a dreadful extent. The worst cases of leprosy I ever saw, was at a tavern; the contents of a necessary flowed into the yard where the swine were kept, and the whole family were affected with the most strongly marked and genuine character of this disease that could be witnessed.

In 1810 Dr. Innes, Surgeon to the King, informed me, that sixty years before that, there was not a leper in the whole county, and no case of scrofula, except among the higher ranks who had been to England; but now that county is dreadfully affected with both disorders. Had the people been aware of the disastrous consequences that have ensued from the admission of pigs within their territory, they would have wished them with the Gadarean swine. About six years since I received a letter from the late Capt. Cochrane, which contains facts of such paramount importance relative to the feeding of pigs in Peru, that I cannot but insert it here with the hope that the plan may be followed in this country, from being aware of the wonderful effects produced on the swine by proper feeding.

I feel the greatest pleasure in inserting the following letter of Captain Cochrane; for in a conversation with a Spanish ambassador (who had formerly been a physician), he informed me, that since the salutary regulations mentioned in the Captain's letter had been enforced, leprosy, and other cutaneous diseases arising from the use of foul-fed pork, had almost wholly disappeared.

York Hotel, Manchester;

4th August, 1831.

My dear Doctor.—Having attended your lecture at the Manchester Exchange Room, with which I was both edified and pleased; and having heard you attribute the origin of leprosy in Scotland to the lower class eating badly fed pork, induces me to lay before you some slight observations I made

during my travels in South America, relative to the feeding of pigs. In 1819, I was Lieutenant of His Majesty's frigate *Andromache*, then at anchor in Callao Roads, off Lima, the capital of Peru, Peznela then being Viceroy for the King of Spain, and shortly previous to the revolution of Peru.

I visited every thing worth seeing in the capital, and the surrounding country: amongst other things I was particularly struck with a vast quantity of pigs, upwards of five hundred; I asked why so many were congregated together, when I was informed that the government allowed no pigs to be kept in the city of Lima. These pigs were in an extensive piece of ground, dry and gravelly, enclosed in a strong pallisade; through the centre of the enclosure ran a broad but shallow stream; at the upper end of the ground, which sloped towards the stream, were two large sheds, quite clean and dry, under which the pigs lay during the heat of the day, and at night. They were fed twice a day, at sun-rise and sun-set; that is at six in the morning and six in the evening; for the sun, for nine months in the year, is not seen at Lima, an impervious cloud always hanging over the greater part of Lower Peru, and extending one hundred and twenty miles to seaward. It was sun-set when I paid my visit, so that I had the satisfaction of seeing the herd of swine fed; the keepers threw large quantities of Indian corn into the shallow stream, a famous race immediately commenced from the sheds; the corn was eaten in the water, and appeared to agree with them particularly well; the pigs were white, fat, and beautifully clean. On returning to Lima, I ordered some of the pork, and never eat finer; and was informed, that the natives very much prided themselves on their pork, and considered it the most wholesome food they had. As a contrast to this I beg to mention, that when travelling from the Atlantic to the Pacific Ocean, through the Republic of Colombia, I came, after crossing the Cordillera of Choco, to the village of Novita; at which place the natives live almost entirely on pork. The pigs are very large, and kept on the ground-floors, under the dwelling-rooms of the proprietors of the cottages, which are built of bamboo; these pigs are fed with herbs, refuse, and the offals of their slain brethren; they lie in a mass of mire, which is plentifully saturated

with rain, that runs in at one side of their dwelling and out at the other. It seldom fails to rain once in twenty-four hours at Choco. I ate of this pork, it was rank, and red-looking; I could scarcely keep it on my stomach; and the natives were all of them more or less sickly. But this bad feeding of pigs in Choco is not so disgraceful as that which you may yourself see any time in this city of Manchester, at a livery-stable close to Mosely-street; the pigs there are confined in a narrow sink, among the fresh horse-dung; and their food consists of such half-digested corn as they can rout out. In Choco, they had the excuse of poverty and a want of Indian corn, and above all, a want of knowledge; but here it is the love of making money, to obtain which the individual appears to be reckless of the lives of his fellow-creatures: certainly a conduct most disgraceful to a civilized nation, and which calls for the interference of the legislature.

Wishing you my dear Doctor, every success in your laudable exertions.

Believe me to be,

Sincerely and faithfully your's,

CHARLES STUART COCHRANE.

Dr. Whitlaw.

I have been thus particular in describing foul-fed pork, it being so generally used, and productive of so much disease. In regard to pork as food we may observe as in Peter's Vision. "What God hath cleansed, that call not thou common."* The mode of feeding pigs by many of the farmers cannot be too strongly reprobated, as they never think of giving them their food until it has remained in the wash-tub and become sour, which stops circulation in the hair, and renders the meat excessively fat, rank and ill flavoured. The finest hams I ever tasted was in Virginia, where the swine are kept in pens at night, and fed a mile distant in the morning, the exertion of running would cause all the noxious matter to pass off, and the lean and the fat were well mixed, and the meat was delicious.

There is another important part of the law respecting the fish yet to be dilated on. "These shall ye eat of all that

* Acts, chapter x. verse 15.

are in the waters; whatsoever hath fins and scales in the waters, in the seas and in the rivers, them shall ye eat." "And all that have not fins and scales in the seas, and in the rivers, of all that move in the waters and of any living thing which is in the waters, they shall be an abomination unto you."* The fins and scales are the means by which the excrescences of fish are carried off, the same as in animals by perspiration. I have never known an instance of disease produced by eating such fish, but those that have not fins and scales cause, in hot climates, the most malignant disorders when eaten: in many cases they prove a mortal poison. They produce numerous cutaneous affections particularly that known by the name of the fish-skin disease. Great confusion has arisen among medical writers about the arrangement of this peculiar disease, owing to the change that takes place in its character and appearance, from the many poisons generally poured into the stomach of the patients; and this is the cause of its having been so perplexing to those who have written on the subject. I have had numerous cases since the commencement of my practice, from every quarter of the globe, and never met with one who had not exhausted the first medical skill, without benefit, but I have never failed to effect a perfect cure with my Medicated Vapour Bath, without the aid of mercury or any mineral poison; having found ample resources in the vegetable kingdom, with which, and the aid of the bath, to cure elephentiasis and the fish-skin disease in all their various forms, indeed there is more trouble to cure their bones after having been loaded with mercury, arsenic, antimony and other mineral poisons, than the disease itself, before such have been administered.

I have met with some cases of the *Asturian elephentiasis* mentioned by Mason Good, and although he ranks it as a fish-skin disease, I suspect the use of swine's flesh and mercury have more to do with its origin than the fish. The excessive fœtor is caused from the diseased state of the periosteum and bones, and so varied have been the descriptions given by the members of the profession, that Mason Good

* Leviticus, chapter xi. verses 9 and 10.

who has written the best account of all cutaneous diseases, observes, that the description given by Moses and Celsus far exceeded any other for accuracy.

Carnivorous fowls were prohibited by the Mosaic law to be eaten,* and I had many opportunities of witnessing the dreadful effects caused by the use of their flesh. It brings on acute inflammation beyond all other substances, imparts to the body a most disagreeable odour, and generates a ferocity of temper sooner than any other kind of food. Dr. Barron, of Charleston, joined me in putting it to the test on half a dozen negroes, and found it perfectly correct, for after eating the flesh of such animals, their lechery was unbounded ; and if we refer to the Tartars, who live on flesh and blood, we shall find them to be cruel and ferocious in their dispositions, gloomy and sullen, delighting in exterminating wars and plunder ; whilst on the other hand the Brahmins and Hindoos, who subsist entirely on a vegetable diet, possess a mildness and gentleness of character and disposition directly the reverse. I have no doubt but if India had possessed a more popular form of government, and a more enlightened priesthood ; her people, with minds so fitted for contemplation, would have far outstripped the other nations in manufactures, arts and sciences. All philosophers, from Pythagoras to Dr. Franklin have given their testimony in favour of vegetable food, its beneficial influence on the powers of the mind, has been experienced by all sedentary and literary men ; for as Dr. Cullen justly observes “ vegetable aliment, as never over distending the vessels, or loading the system, never interrupts the stronger motions of the mind ; while the heat, fulness and weight of animal food, is an enemy to its vigorous efforts.” The irritability of the whole system, consequent on the use of carnivorous fowls, animals, and blood, independently of the acute inflammatory disorders it produces, is sufficient to debar society from making use of it. The bath with appropriate medication, and alterative medicine is a perfect specific in acute inflammation, and also in chronic cases, where the tendons and muscles are as hard as bone and quite immoveable, from repeated attacks of inflammation.

* Leviticus, chap. xi. verses 13.

I will pass by the ceremonial law for the present, which was adapted to the hot climate inhabited by the Jews, and notice a few reasons to prove the wisdom of the commands of Moses, viz. "Thou shalt not plough with an ox and an ass together."* Commentators have considered that it was on account of the ox being so much stronger than the ass, but when travelling in France, I soon found that they were in error on that point, and if our commentators were obliged to study natural history, agriculture and horticulture for two years, as they are in Holland, before they can be licensed to preach, they would have arrived at a very different conclusion, for on shifting the whiffle-tree the ox could be made to draw six times more than the ass. On seeing them draw together, I went to observe the unequal yoke, the ox was holding his head away from the ass, and drawing with one shoulder; on asking the Frenchman the reason, for I thought the other shoulder must be sore, he told me, it was to avoid the foetid breath of the ass when pulling, as it was poison to the ox, for he would soon become lean and if long exposed to it would probably die. I at once saw the utility of the humane prohibition. Again, "Thou shalt not wear a garment of divers sort, as of woollen and linen together." However trifling it may appear in the eyes of those who are ignorant of the subject, and who treat it in such a cavalier manner, it is quite at variance with the humanity of the law. Wool when combined with linen increases its power of passing off the electricity from the body; in hot climates it brings on malignant fevers and exhausts the strength, and when passing off from the body it meets with the heated air, inflames, and excoriates like a blister. When electricity is absent from the air, both vegetables and animals suffer exceedingly, as the air is powerfully saturated with sulphuretted hydrogen, hence malignant fevers and pestilential disorders prevail; when the thunder and lightning comes, the excess of hydrogen is consumed, and the electrical principles so necessary to the support of life are restored. Read the 22nd chapter of Deuteronomy, then pass on to the 28th chapter and verse 18. "Cursed shall be the fruit of thy body, and the fruit of thy land, the increase of thy kine and

* Deuteronomy, chap. xxii. verse 10.

the flocks of thy sheep." The whole of the chapter refers to the state of agricultural policy; the obedience of the law, with the proper cultivation of the soil brought health, wealth, national power, tranquility, and all the blessings mentioned in the former part of the chapter, but curses and misery were to overtake them when they neglected their agriculture. When they allowed their land to become corrupt, as before stated, their flocks were diseased, and, from their use, their own bodies became stimulated, and they were hurried on to every species of lust and crime. Their bodies became emaciated, their minds depraved, and they were the oppressors and destroyers of one another. Verse 21st. "The Lord shall make the pestilence cleave unto thee, until he have consumed thee from off the land, whither thou goest to possess it." Pestilential diseases have hitherto been connected with a bad state of agriculture, and a deficiency of the electrical principle in the air, and also moist seasons, which are favourable to the increase of insectile life, particularly those that are fostered by animal and vegetable substances undergoing the putrefactive decomposition. All such insects are highly destructive to grass, grain, vegetables, animals and men.

I have observed in all the countries where I have travelled, that when the salts and alkalies were extracted from the soil by long cropping, the land became in a highly acid or putrid state. The elementary principles of the soil were essentially deranged, hence all the products of the soil become diseased. Sharon Turner in his History of the World, observes, "that the electricians both in France and England have observed a great deficiency of the electrical principle in the air, for ten years past." Hence we must expect a great increase of insectile life, consequently the various species of cutaneous and pestilential diseases. Verse 22nd. "The Lord shall smite thee with a consumption, and with a fever, and with an inflammation, and with an extreme burning, and with the sword, and with blasting, and with mildew: and they shall pursue thee until thou perish." How natural to expect such terrible diseases to follow so corrupt a soil, top-dressed with corrupt manure, forcing all manner of poisonous weeds and insects, which diseased the grain and

grass, and poisoned the air, and likewise caused a great deficiency of the electrical principle so necessary to the destruction of insects, and the renovating of animals and men. Deity has, in the construction and government of the world, displayed his infinite wisdom in the admirable distribution of the elementary principles which enter into its composition to fulfil the divine decrees. How remarkably the succeeding verse describes the causes and effects that follow from neglecting the soil. "Verse 23rd. "And thy heaven that is over thy head shall be brass, and the earth that is under thee shall be iron." What an admirable delineation of an exhausted soil and contaminated air being as parching, burning, and glistening in appearance as at noon-day. This is particularly so in hot climates where the soil cakes, burns, and cracks under the parching rays of the sun.

The earth in the West Indies and Southern States of America, when the soil is exhausted, is exactly like iron in appearance; being for the most part composed of clay, iron, and gravel, or whole districts of sand on a bottom of iron and clay. Verse 24th. "The Lord shall make the rain of thy land powder and dust; from heaven it shall come down upon thee until thou be destroyed." Long cropping without allowing the land to rest, is the reason of this, for manure will only fertilize to a certain extent, it will cause a great quantity of straw and lean grain, the roots of the grass will decompose the crystals or particles of this soil, until it reduces it to powder and raises a dust in dry weather, which being wafted by the wind is very hurtful to the eyes and lungs: this is much the case in eastern countries where the land is decomposed by severe cropping. Verse 27th. "The Lord shall smite thee with the botch of Egypt, and with the emero-ods, and with the scab, and with the itch, whereof thou canst not be healed." The botch of Egypt—medical writers in the present day are not aware of the causes of the diversity of humours which exist. I have been enabled to make great researches on the subject, having followed the practice of my great master Linnæus, who has described 123 genera of insects, and 14,000 species, a great number of which by their stings, bites, and the deposition of their eggs in animals and men, both externally and internally, by food and water

contribute greatly to the formation of the various tumours and fevers so destructive to animal life. Linnæus has also published 118 genera, and upwards of 6,000 species of worms equally destructive. I suspect that the term botch of Egypt was applied to all glandular and malignant tumours. The emerods, were the piles, which were produced by the corrupt state of the soil, and the acrid quality of the fruit, grain, and grass, which is heightened by the attacks of insects. The continuance of such food so far from contributing to heal the disorder, only increased its virulence.

This terrible disease is now scourging the inhabitants of this country as well as America, which I find no difficulty in curing when I can procure wholesome food. "And with the scab," which applies to animals fed from bad soil, and from the use of these products communicated to the human species. "And with the itch, whereof thou canst not be healed." The two last-mentioned diseases are both produced from the same cause, viz. insects, which Dr. Willan supposes to belong to the genus *Pulex*, in consequence of its jumping motion. He calls the disorder prurigo, and the species mitis, fornicans, and senilis. Mason Good has described the three varieties, and laboured hard to account for the disorder independant of insects; he has completely failed, his doctrine being in unison with the absurd notions of the schools, treating of effects without a cause. He has, notwithstanding, described in another part of his work, many insects which are found within the living body. "Some of them," he says, "grow to such an enormous size and with such altered characters from rioting on so plentiful a supply of juices, that it is by no means easy to recognize them." This is a complete confirmation of the Linnæan doctrine. As to the creative process, he observes, "in many cases the second variety, and still more of the third of this pertinacious and distressing complaint, bids defiance to all the forms of medicine or the ingenuity of man."

The French had this disorder, particularly in Paris in the years 1828-29-30 and 31. The doctors say the disorder run itself out, as nearly all the patients affected with it fell victims to the dreadful scourge, and to the effects of the poisons given for their alleviation and cure. The disorder was known

in France by the name of *Mal des Pieds et des Mains*. M. Chardon who published a long account of it, has called it *Acrodynia*. The French physicians never broached the doctrine that the epidemic was imported from abroad. Upon the whole it appeared as if every kind of treatment were to be equally unsatisfactory, or perhaps ineffectual. Thus far this terrible scourge has descended to us from the Mosaic account, without knowing the cause, otherwise than the bad cultivation of the soil, until a Frenchman discovered that it was caused by the use of sheep which had the scab, this they called the malignant pustule. I found the disease was caused by an insect in the sheep, the same as figured by Willan and Bateman, and have no doubt but that the consumption of mutton thus affected is the cause of this disorder.

A young lady of great respectability who was affected with the *prurigo similis* consulted me a year ago, after having tried the skill of many of the medical profession in vain. The last she consulted had compassion on her, and observed, if ever she was cured it must be out of the pale of the medical profession, and recommended her to try my remedies. She told me this after the cure was performed. This was a sad confession, and an act of generosity hardly to be met with. The great experience and success I have had in curing the disorder and renovating the patients general health, is quite unprecedented in the history of medicine. It is but justice to confess that *animalculæ* in the system cannot be cured without substances that are poison to them. Hence the medical men have used almost every poison, and frequently the patient's body is a perfect compound of poison. I have found it more difficult to extract the poison than to destroy the insects and effect the cure. One of the greatest desideratums in the cure of diseases occasioned by insects, is to discover the various oils, gums, salts, alkalies, and resins, that are contained in the great variety of vegetables which cover the surface of our earth, as I believe there is no insect that exists but may be destroyed by one or more of these substances. There is not an insect that was ever known, but the American Indians will destroy, and no venomous bites of mad dogs, snakes, and insects, but they

cure. In former years the Indians were in the habit of poisoning their arrows when they went to battle. They made a substance called Woorara, and another Ticunas, which are the most deadly poisons. The whole of the tribes discovered antidotes to the poison, and when wounded they drank the counter poison, which relieved them at once if the arrow had not reached the vitals. They made terrible havoc among the wolves and other beasts of prey by driving them into the swamps in winter, and setting fire to the withered grass to the windward, the swamp was surrounded by the men to the leeward, who, on the fire driving the wolves to them, wounded as many as they could, and the poison by stupifying them, made it easy to dispatch them. They told me they frequently made more slaughter with their arrows than they now do with fire-arms. The counter poisons were sent to me from Mexico for the cure of the bite of rabid animals and snakes. They were the *Alisma*, *Plantago*, and *Prinanthus serpentaria*. And for the cure of the Woorara, and Ticunas they used the *Eupatorium Scandans*. They are intensely bitter and the most powerful sudorifics in creation. The antidotes being now so well known, the Indians discontinue the use of the poison. The *Alisma* is in the class *Hexandria*, order *Polygynia*, the only plant belonging to that class and order, and, if unfortunate men would but study the works of nature, they would see that the Creator placed it alone as a beacon to mankind. The plant grows in swamps and ditches in every part of Europe.

I do most earnestly call the attention of the public to this valuable boon. When the States were under the government of Britain, a slave discovered from the Indians the plant that cured the snake bite. The General Assembly of South Carolina offered the negro his freedom and £100 sterling, if he would divulge the secret and make trial of the remedies. They sawed a puncheon in two, put in six rattlesnakes and made the negro jump into the cask among the snakes, they all bit him: he came out, drank the juice of the *Alisma* and Horehound, and applied the leaf of green tobacco to the wounds, and was cured. The leaves of the *Alisma* are like *Plantago* or plantain leaves, consequently the cure was published as having been effected by the leaves

of plantain and horehound. The following summer the negro's cure was tried all over the United States but failed in every instance. It was concluded that the poor negro had deceived the legislature by making the snakes exhaust their poison before putting them into the cask. They could not deny the snakes having bitten him, as he bled profusely when he came out. The trial was published in an early edition of Dr. Buchan's work. Nothing more was heard of it till the year 1816, when reports were made of the cures effected by one of the members of the Assembly, Dr. Powell, who, for want of botanical knowledge, gave it out to be the plantain and horehound. I was then in Charleston lecturing on botany, when Dr. Barron thinking the medical profession was compromised, wished me to assist in making a fair trial of all the species of plantain and horehound in the State. I procured all the species and a number of snakes, we tried it on pigeons, fowls, cats and dogs, by stuffing them with the juice, as well as leaves; every one of them died. We then tried musk oil and a variety of nostrums, but with as little success. We then took the snakes into a field to the swine, who eat up the whole of them after being bitten in various parts without producing the least injury. The swine eat so much of the antidote that this is no doubt one reason why their bodies are proof against the poison. In those parts of the country where serpents are abundant, the swine soon clear the place of them. We were then obliged to come to the conclusion that the negro's specific was not true.

I was then invited to lecture at Augusta in Georgia, and in the course of my lectures I mentioned the trial we made in Charleston, when Dr. Powell who was a member of the Assembly when the reward was granted to the negro, expressed his surprise at our want of success, as he had cured some hundreds of animals and men, even when mortification had taken place round the bite. I asked him if he understood botany, he answered me in the negative, and kindly invited me and my class to take breakfast with him at his country house, where he would shew us the plants and many of the cures. I suspected that I should discover some botanical error. I started with my numerous class to the Doctor's hospitable mansion, where he received us with that gentle-

manly kindness and urbanity, so characteristic about a century ago of one who had received his education at Edinburgh. After our repast, we saw eighty-six negroes, dogs, horses and mules, which had been cured. This raised our expectation to the highest pitch. A number of the younger branches of my class went to the swamp with the negro who collected and prepared the plants for the Doctor. Immediately on their seeing it they raised a cry of triumph, and pronounced it with much joy and satisfaction to be the *Alisma*, and not the *Plantago*, or plantain.

I then pointed out the great difference between the genus *Plantago*, which belongs to the fourth class *Tetrandria*, order *Monogynia*, and the genus *Alisma*, which is in the sixth class *Hexandria*, order *Polygynia*, and is associated with some of the most powerful plants known in the healing art. The Doctor stood amazed, and observed, what a glorious discovery it was, regretting at the same time the numerous lives that had been lost for want of botanical knowledge. It gave him much satisfaction to see so many of the youth and children around him perfectly competent to classify and specify every plant. Although the country was one complete mass of blossom, the specific for the bite of snakes absorbed the sole attention of both young and old, the younger running with delight to their friends to describe the plant. My lecture-room that evening was crowded to excess. I gave a general explanation of the powers of the plants contained in that highly valuable medicinal class, and strongly recommended the study of the Works of God as the only way to preserve mankind from the ills of life. The Rev. Mr. Joyce of Augusta then made a powerful appeal to the inhabitants to follow up the study, and concluded by offering up a prayer of thanksgiving to the Deity for his unspeakable gifts to man. I can truly say, that was one of the most pleasant days of my life.

Verse 28th. "The Lord shall smite thee with madness, and blindness, and astonishment of heart." These terrible evils are making great inroads amongst us, nor can we wonder at it when we consider the corrupt state of the soil, and the bad quality of the food raised thereon, in conjunction with the long catalogue of poisons poured into the

stomach. Nothing can restore persons thus affected but wholesome food, appropriate vegetable medicines, medication and the bath, by which means we can change the whole fluids and solids of the body. The derangement of the elementary principles of the soil, is at the root of these diseases. The body becomes diseased, this deranges the faculties of the soul, perverts the understanding, and effects both the temporal and eternal welfare of the soul. The leaders of the people thus cause them to err. The retrograde march is sometimes slow, but not less sure. I most anxiously pray that the physical leaders of this great empire may pause before it is too late, and no longer humbug the people by tracing out effects without a cause, which is the greatest insult to God's moral government of the universe, as the whole of his works are cause and effect.

The next awful curse which is denounced against that unfortunate people, is verse 38th. "Thou shalt carry much seed out into the field, and shall gather but little in; for the locust shall consume it." Corrupt and worn-out soil will yield but little, and will as a natural consequence be devoured by insects. Verse 39th. "Thou shalt plant vineyards and dress them, but shalt neither drink of the wine, nor gather the grapes, for the worm shall eat them." There is no production of the earth that requires so much nourishment as vines and fruit trees. They not only require constant manure and fresh earth to be applied to their roots, but also a constant supply of salts and alkalies, otherwise the fruit will become sour and diseased. This is the case with most of the fruit trees in England. It has been the favourite plan with the nursery men to manure their ground with fresh cow and horse manure, which by enlarging the trees to a great extent, and swelling the fruit, put more money into their pockets, whilst the fruit is ill flavoured and unwholesome. Such trees when planted on a poorer soil become a perfect receptacle for all manner of parasitical plants and insects, and the tree loaded with excrescences soon exhausts the soil of the nourishment so necessary to produce good fruit. In consequence of the absence of salts and alkalies the fruit will become sour, and insects will increase, to which they are highly destructive. Such fruit conveys all

manner of insects into the stomach, producing diarrhœa and cholera morbus. There is nothing so congenial to the nature and health of mankind as good grapes, and the various fruits. They refresh and enliven the spirits, invigorate the whole body, and when acknowledged as coming from the hand of an Almighty and bountiful giver of all good, cannot fail to warm the heart with love and admiration.

Look at the terrible contrast when the resting and cultivation of the soil is neglected. The salts and alkalies are extracted, the electrical principle is withdrawn, insects prodigiously increase, and extend their ravages on vegetables, animals and men. They have been very truly denominated "the armies of the Almighty," as their dreadful ravages and irresistible visitations clearly assert. They go forth to fulfil the divine decrees against all those that neglect his laws, and contemn his ordinances. When the fruit is thus raised, the grapes become sour, diseased with mildew, and eaten up with insects. Every poison is then resorted to in order to prevent the wine becoming acid, such as letharage, laurel water, sugar of lead and copperas. The votaries of Bacchus have then the devil's dose, and by continuing it from day to day, their bodies are exhausted, as likewise the nervous fluid so necessary to regulate the faculties of the soul, and they become the oppressors and destroyers of one another, and when they arrive at the middle stage of life, the gout seizes them, and as Solomon observes, "at last it biteth like a serpent and stingeth like an adder."

The Apostle Paul forbade the use of wine to Bishops because it made them heady, high-minded, hard-hearted, oppressors of the widow and fatherless. A pious divine truly observed, "unless a person's heaven was begun on earth they need not expect to enjoy it hereafter." One of the greatest and wisest acts of the American Congress was, that they were in the habit of passing their laws between breakfast and dinner; one season they undertook to pass some laws after dinner when under the influence of wine, but when in the morning they reflected on what they had done the previous evening they were compelled to unmake those laws; all their committee business is transacted after dinner and their laws enacted before. But I really

believe the most of the devil's work is carried on after dinner, and I should heartily rejoice if our Members of Parliament would cut a leaf out of brother Jonathan's book. They will be better disposed towards one another, and I am sure they would give greater satisfaction to their constituents, as they have the highest authority that wine inflames and makes persons heady and high-minded, particularly such wine as is cultivated and doctored now a days. Verse 40. "Thou shalt have olive trees throughout all thy coasts, but thou shalt not anoint thyself with oil, for thine olive shall cast his fruit." Olive oil has been greatly celebrated in all ages, and esteemed as a bounteous gift from heaven. It is inflammable, burns fiercely, and prejudicial to the growth of many vegetables, and poisonous to insects, particularly to the insect which is the cause of the plague. Externally it has been found an useful application to bites and stings of various poisonous animals, as the mad dog, serpents, &c., also to burns and tumours, both by itself or mixed with liniments or poultices. Oil rubbed over the body is of great service in dropsies, particularly the acitis oil, which enters into many compositions, and when united with water, by the intervention of an alkali, is usually given in coughs and hoarseness.

Oil considered as a medicine is supposed to correct acrimony and lubricate and relax the fibres, and therefore has been recommended internally to obviate the effects of various stimuli which produce irritation and consequently inflammation. On this account it has often been prescribed in coughs, catarrhal affections, and erosions, and is highly beneficial when employed internally or externally in the destruction of insects and worms. It is very beneficial to mankind for seasoning their food, to supple stiff and weary joints, for healing wounds, embalming dead bodies, for purifying virgins, and rendering comely the countenance, for making friendship by presents, and for marking out one set apart to the office of a priest, prophet, or king. The Hebrews used oil in their meat offerings, sacred lamps, and in common use. They made a very precious ointment which was held sacred, compounded of olive oil, sweet cinnamon, calamus, cassia, and pure myrrh, but twice as much cassia and myrrh as of the others. This was used in anointing the priests, and the

tabernacle and furniture, The oil was highly valuable for preventing the scorching rays of the sun from cracking their skin, and to guard themselves against the sting of insects; indeed so great were the benefits derived from it that they regarded the olive as the emblem of peace. The olive, like all other plants that give out large quantities of oil, requires constant renewing of the soil, and manure combined with salts and various alkalies laid round the roots to enable them to give out their proper quantity and quality of oil. But when the proper cultivation and compost manuring of the soil is neglected, the earth will become sterile and cankered, the trees will cast their fruit before coming to maturity, and oil made from such fruit will become rancid, unhealthy, and unfit for use; it will disease the stomach, like bad butter, and other oils, causing dyspepsy and cutaneous diseases; and instead of a blessing become a curse.

The *Palmæ* or Palm tree being highly worthy of notice, for the many valuable properties it possesses, I will transcribe Brown's notice of it. "The Palm tree is found in a variety of the warm countries in the north of Africa, and in the south of Asia, &c. Many Palms grew on the banks of Jordan; but the best were those about Jericho and Engedi, which last is for that reason called *Hazazon tamar*, the cutting of the Palm tree. Palms grow very tall and upright; and their leaves retain their greenness through the whole year. The more they bask in the sun, their growth is the better; nor is it any worse of burdens being hung on them. They produce little fruit till they are about thirty years old; after which, while their juice continues, the older they become, they are the more fruitful, and will bear three or four hundred pounds of dates every year; but it is said the female bears no fruit, except it be planted along with the male. This tree produces dates, a most sweet and luscious kind of fruit. They also extract from it a kind of wine, which is perhaps what the scripture calls *shichar* or strong drink. It likewise yields a kind of honey. As its sap is chiefly in the top, when they intend to extract a liquor from it, they cut off the top, where there is a tuft of spiring leaves about four feet long, and scoop the trunk into the shape of a bason. Here the sap ascending, lodges itself, at the rate of three or

four English pints a day for the first week or fortnight, after which it gradually decreases ; and in six weeks, or two months, the whole juice will be extracted. As Palm trees were accounted symbols of victory, branches of palm were carried before conquerors in their triumphs ; and in allusion thereto, the saints are said to have palms in their hands to denote their victory over sin, Satan, the world, the persecutions of Antichrist, &c. Rev. chap. vii. verse 9. To mark their constant perseverance, heavenly and upright disposition, their necessity of fellowship with Christ, their spiritual comeliness and fruitfulness in good works, and their certain victory over all enemies, they are compared to Palm trees, Psalm 92, 12, Song 7, 7. To represent them in their connection with angels and ministers, there were figures of palm trees and cherubims alternately mingled in Solomon's temple, and in Ezekiel's visionary one."

The cultivation of the vine, olive, and palm trees will I think soon become an object of great attention in the South and North American States, and in the province of Texas, when the whole world will be abundantly supplied and in the greatest perfection, as they will be raised in the valleys at the bottom of their numerous mountains with but little trouble, as the alluvial soil washing down from the mountains will enrich the soil so that it will never wear out. I have no doubt but that in half a century that country will be a perfect paradise.

Verse 50th. "If thou wilt not observe to do all the words of this law that are written in this book that thou mayest fear this glorious and fearful name, the Lord thy God." Verse 59th. "Then the Lord will make thy plagues wonderful, and the plagues of thy seed, even great plagues and of long continuance and sore sicknesses, and of long continuance," Sore sickness is the various species of Cholera Morbus arising from corrupt grain and diseased fruits. There was still an awful catalogue of diseases which was to be poured out upon them in the two following verses. Verse 60th. "Moreover he will bring upon thee all the diseases of Egypt, which thou wast afraid of, and they shall cleave to thee." Verse 61st, "Also every plague, and every sickness which is not written in the book of this law ; them will the Lord bring upon thee until thou

be destroyed." Moses reasoning from cause to effect, set life and death before them, obedience to the heavenly instructions, given them as a rule of life, was to bring blessings, and disobedience all the curses contained in the former chapters, which have been fulfilled to the letter. The reader will meditate on it and see how far we are verging on the precipice that engulfed that unfortunate nation.

I will pass the minute portions of the law, and touch on such as regard a bad agricultural policy. II. Chron. chap. xxi. verse 11. "Moreover he made high places in the mountains of Judah, and caused the inhabitants of Jerusalem to commit fornication, and compelled Judah thereto." When the bonds of morality were broken and the flood gates of vice thrown open, the bodies of the people became emaciated and destruction came on them speedily. A review of the reigns of their kings furnish an awful picture of human depravity—alas! that we should imitate them in their vices and crimes. The past history of the world is a sad picture of human depravity, the mounds of virtue being broken down, and a terrible catalogue of diseases follow in its train.

I am truly astonished at the criminal abuse of the sexes, and to see the callous indifference of most of our rectors and clergymen on the subject. I will draw a short portraiture of the evils attending such conduct. When I went to New York in 1794, there were with me on board about two hundred and fifty passengers, many of them mechanics, farmers, and labourers, young men in the prime of life. When they arrived they got the best employment with high wages, but soon began to drink and entered into every species of vice and prostitution. Many of them had their constitutions so broken down that in ten years but few of them were left. I buried a number of them at my own expense, and received bills for monies lent them which had been drawn on their poor parents. There are two evacuations from the human body, the loss of blood, and the nervous fluid,—which from extreme debauchery, and the consequent drain of the nervous fluid, with a high state of excitement bring on nervous and bilious fevers. The mania of blood-letting was beginning to take place amongst medicalmen, and wherever they felt the excited pulse, the lancet was immediately resorted to. I have seen

the blood flow from their veins like scarlet, and foam in the bason like yeast. Numbers sunk in a few days in a state of delirium. When attending dissections I have found that from frequent salivations and repeated bleedings, the blood was excessively poor and inflamed, their nervous fluid was completely exhausted, so that some of the medical men thought the nerves were not tubular. Those that partially recovered died with pleurisy, sometimes it relapsed into malignant putrid fevers, and numbers died of consumption; in those that recovered, it is impossible to portray the morbid effects that took place on their constitutions and the various organs of the body, a sinking of the pulse and sudden reaction, its mischievous influence on the meninges of the brain, the capillary vessels of the lungs, heart, stomach, with frequent spasms, and spasmodic twitchings all over the body. But when the nervous fluid is much exhausted, the whole faculties of the soul suffer. The hearing, taste, smell and sight become very much impaired. In some cases the eye became so glazed in appearance, that it seemed as if the vital powers were fast sinking, and they told me their brain felt like a lump of clay or wax, others of them presented a wild frantic stare, as if they thought the brain was going to explode. If any partially recovered, it was to undergo the most dreadful affections of the nerves, as *tic douloureux*, *sciatica*, *hysterics*. The digestion became impaired, so that dyspepsy was the prevailing disorder of the day, alkalies were resorted to in order to correct the acidity of the stomach, which only checked the disorder for a time, and when often repeated never failed to increase it; thus my circle of shipmates was soon reduced to a tenth of their number. At that time, the youth in the colleges were in the most pitiable state, launching out into the most complete debauchery which soon spread through all ranks of society.

When I first arrived in New York, nervous complaints and insanity had scarcely any existence, except amongst a few foreigners, but now they are as bad and numerous as in this country. The mercurial men began to increase to such a terrible extent, that the whole community were groaning under the weight of their nefarious drugs. The clergymen then began to exert themselves and visited all the haunts

of iniquity, men were appointed to inspect the city, and report the growing evils, but the grand jury thinking it highly disgraceful to the city condemned the journal, the clergy, however vindicated and protected the editor. It was stated that it cost the city twelve millions of dollars yearly to support their vices. Dr. Graham took up the subject and pointed out its fatal influence on individuals and society at large, and never was the pen of man employed with more effect. With the aid of the Ladies Association to reclaim the vicious, and support and protect the indigent, the clergy and Temperance Societies have effected a greater moral change in the States than has ever been accomplished in the same given time in the history of man. At that period, we had in New York a most complete picture of the condition of the Jews in the reign of Jehoram.

When I first visited that city in 1794 they were the tallest men and women I had ever seen, but on revisiting it in 1824, I found that they had lost from four to five inches in their stature. The inhabitants of England and Scotland, particularly in the manufacturing towns have debauched and debilitated themselves. Dr. Trotter's work on nervous temperament gives the best description of the diminution of mental and physical power in Britain of any work now extant.

I would that the same moral revolution might take place in this country, as has taken place in New York and other places in the States. I have thus given a faint picture of the depraved state of this country: the gratification of their lusts and passions, and the love of money has swallowed up every other consideration in the minds of the people. In looking over the Roman History we find the Romans were never more proud of their ancestors than when they ceased to resemble them. From being the most free and high-spirited people in the world, their wealth, splendour, and superstition sunk them to a state of slavery. From the fate of these two empires, once the happiest, and the most virtuous that ever existed, we may learn the unvarying fate of all nations who give themselves up to the love of money-making, and follow their lusts; but I hope there is still such a portion of rectitude left as will soon sow the seeds of moral regeneration. It is possible and honourable to retreat

from the brink of a precipice, but woe to that nation which sleeps upon it. The Jews when they were released from their bondage, and under the guidance of Moses, the meek servant of the most High God, were still slaves to their evil propensities, and by their frequent sins, idolatry, and murmurs against the provision and lot assigned them, though a most fertile inheritance when under theocracy, and under David and Solomon, provoked the just indignation of God, who delivered them over to the judgments of a broken law, which was more terribly executed against them than their Egyptian bondage. When the Messiah appeared who was to redeem them from their sins and point out the path which leads to immortality beyond death, they rejected and crucified him, exclaiming, "His blood be upon us and on our children." They truly invoked the vengeance of heaven which was poured out upon them in such an awful manner, shortly after. When the Romans had prepared to invade the Jewish territory, the christians, according as Jesus had warned them, took the opportunity to leave the city and country westward of Jordan and retired to Pella a place on the east. Soon after the Romans under Vespasian, whom God had marvellously advanced to the empire, invaded the country from the north east, and furiously besieged and took the cities of Galilee, Chorazin, Bethsaida, and Capernaum, where Christ had been especially rejected, and murdered almost all the inhabitants, while the zealots of the Jewish nation with enraged madness were fighting with one another. At Jerusalem the scene was most wretched of all. At the Passover when there might be two or three millions of people in the city, the Romans surrounded it with troops, trenches, and walls, that none might escape. The three factions within murdered one another, till at last Eleazar's party was treacherously massacred by their brethren. Titus, one of the most merciful generals that ever breathed did all in his power to persuade them to an advantageous surrender, but mad on their own ruin, they scorned every proposal. The multitudes of unburned carcasses corrupted the air and produced a pestilence, the famine, hastened on by the destruction of the magazines, prevailed, till the people fed on one another. After a siege of six months the city was taken; provoked

with their obstinacy, the Romans murdered every Jew they met with. Titus was bent on saving the temple, but a false prophet having persuaded six thousand Jews to take shelter therein, all of them were murdered or burnt ; it was set on fire by a brand cast by a Roman soldier, nor could all the authority of Titus, make his troops, who highly regarded him, attempt to extinguish the flames. The outcry of the Jews when they saw it on fire was almost infernal.

The whole city, except three towers and a small part of the wall was razed to the ground. Titus wept as he beheld the ruins and bitterly cursed the obstinate wretches who had forced him to raze it. At Jerusalem alone, we hear of 1,100,000, that perished by sword, famine, and pestilence. Titus crucified them all round the city till he had no more wood to erect crosses. In other places 250,000 were cut off, 97,000 were taken prisoners, many of whom were sent into Egypt to labour as slaves, others were sent to Syria, to be exposed as shows, or devoured by wild beasts. The fortifications and cities throughout were soon subdued, and the inhabitants dispersed over all the kingdoms of the world, and subjected to the most cruel and ignominious treatment from superstitious bigots and zealots.

I am truly happy to see the spirit of toleration which is now gradually gaining ground in this nation. According to the predictions of the Messiah, the Jews have drank the cup of the most bitter misery ; but the day of their redemption draweth nigh, and notwithstanding their dispersion, they still remain a distinct people to be gathered from the four winds. Of all the nations that have as yet existed in our world, the Jewish is the most singular and interesting. History gives no knowledge of any people who have preserved a separate and distinct existence for so long a period, and at the same time maintained, in substance, most of their religious rites and customs, though cruelly persecuted. Their present existence, as a separate and distinct nation in many respects, and yet scattered over the whole earth, may justly be considered as a kind of standing miracle, in attestation of the facts concerning them which are recorded in their sacred books. What reason can be given, that all other nations, however peculiar in their religion and laws have been

swallowed up in the vortex of time, or have been so commingled with foreigners by conquest or emigration, that no traces of them as a living and distinct people are to be found ; while the Jews remain what they were three thousand years ago ? The prophecies as far as time will admit have been literally fulfilled in them. Every sincere christian must rejoice that the final accomplishment of the promise is at hand, when they will acknowledge that the true Messiah has appeared and suffered all things that are said of him.

That the christian religion is built on the Jewish no one who understands the scriptures will deny. The christian scriptures are intimately connected with the Jewish sacred books, and they cannot be understood and explained, except by means of them. The words of the New Testament are Greek ; but its idioms, its costume, its manner of thought and reasoning, its allusions, and in short the whole of it, is Jewish, nor can it be understood by any who are ignorant of the Jewish nation, its laws, customs, and history. The stern doctrines contained in the Old Testament were well suited to the Jews, when we consider them as a community just liberated from bondage, as it made strong appeals to their understanding, but the doctrines of our Lord and his Apostles, come home to the heart, and draw it to our Heavenly Father, and may be compared to a column reaching from earth to heaven in the sight of all men. But the column is so surrounded by scaffolding, that the edifice can no longer be seen. But I hope the time will soon come, when mankind will see that one of the greatest improvements consists, in removing the materials and scaffolding that served only to rear the edifice, and in leaving the columns which support and ornament the temples of our knowledge, free from the rubbish that may impede or intercept our view.

The great stumbling block that lay in the way of the Jews believing in Christ, was, that they expected a splendid temporal prince, but one would have thought that they had had trial enough of their own kings, as they never had in Israel one good king and but few in Judah. All the princes and potentates with their pomp and splendour, who conquered and finally destroyed the Jews as a nation, have fallen never

more to rise again, which, we might think, would for ever banish from the minds of the Jews, the idea of a temporal prince. The Jews will tell us that there have been more wars amongst christians than any other nation, being only christians in name, for although christianity has extended her bounds, the doctrines of our Lord in their power and spirit are contracted indeed. When Christ is acknowledged king and head of his church in her millennial day, every man shall sit under his own vine and fig-tree, and none to disturb in all God's holy mountain. Then will mankind learn to subdue the earth by correcting its corrupt qualities, and disseminating the best of fruits and grains, with all the natural productions of the earth. A mutual interchange will take place between nation and nation, and the world will present but one peaceful field, watered by the divine blessing ;—it is then Christ's kingdom will increase.

I would now say to the Jews, who are possessed of more money than any other people, purchase large tracts of land in the vicinity of cities, place your youth and children on them, and teach them to correct the quality of the soil, and every thing connected with the improvement of it, and the best mode of agriculture ; destroy all such productions as now exist that are so pernicious to mankind, as the foregoing hints point out, and thus supply the people with wholesome provisions. They will then look up to you as their greatest benefactors, and in the end amply repay you ; your offspring will be independant, and the sanction of the divine blessing will smile on your undertaking. It will be a better way of spending your money than lending it to carry on murderous wars to enslave your brethren of mankind. If such a scheme were carried on in this country as well as in others, it is impossible to calculate the benefits that would accrue to the human race ; you would then be preparing for that blessed period which will soon be fulfilled, when there will be but one shepherd and one sheepfold in God's fair world. If my readers will turn to the 72nd Psalm, they will there see the peace that will exist.

To impress on your minds the necessity of regenerating the soil, and the division of it, and in order to give the reader a more perfect view of the high pinnacle of grandeur

to which the Jewish nation was raised when under the peculiar favour and protection of Deity, and during the time they obeyed his laws, I will transcribe Brown's description of the land of Canaan. "Canaan was the name of the country where Canaan and his posterity dwelt. It is about two hundred or rather one hundred and sixty miles in length from Dan on the north, to Beersheba on the south; and from east to west about eighty; and so comprehended in all about 9,231,000 acres of ground; of which each of the 601,730 Hebrew warriors who conquered it might have about twelve acres allotted him for his share. It lies in the 32nd, 33rd, and 34th degrees of north latitude, and in the 36th and 37th of east longitude from London. It has the Mediterranean sea on the west; Lebanon and Syria on the north, Arabia the desert, and the land of the Ammonites, Moabites and Midianites, on the east; the land of Edom, and wilderness of Paran, on the south; and Egypt on the south-west. No more than this was wont to be called Canaan; and this only was promised to the Hebrews in possession; but if we take in the whole extent of territory promised to them in dominion, from the river Euphrates on the north-east, to the river Nile on the south-west, it comprehended all the cities which David reduced, Syria, Ammon, Moab, Edom, &c.; and in this sense, it may be readily granted to the learned Dr. Shaw, that its South borders were the gulfs of the Red Sea, and that it comprehended the land of Goshen in Egypt. Whatever the land of Canaan, properly so called, be now, when it lies under a curse, and lies almost wholly uncultivated, it was anciently a most beautiful and fertile country. The Jordan running southward through it, and forming the lakes of Merom and Tiberias; and a multitude of valleys and hills, pleasantly diversified the form thereof. The rich pastures produced prodigious quantities of milk and honey. The arable grounds which according to Hecateus, (but I suppose his amount too low) amounted to about 3,000,000 of acres, produced the richest crops. The mines of the mountains produced plenty of iron and brass. When God, by seasonable warmth and rains, concurred with the laborious improvers of this soil, it is abundantly credible, how it supported the numerous millions

that dwelt therein. Deu. c. 11, v. 11, and c. 6, v. 10, and c. 8, v. 7, 8, 9. We shall at present take a view of it, as divided into the twelve portions of the Hebrew tribes.

On the east of Jordan dwelt the Reubenites, Gadites, and Manassites. The Reubenites had their lot on the south part, to the north-east of the Dead sea, and north of the river Amon. It was partly very mountainous, including Peor, Nebo, and Pisgah hills, which at present have a very disagreeable aspect. Their principal towns were fourteen in number, but the Moabites seized on part of these cities. On the north of Reuben lay the inheritance of the Gadites; their chief towns were twenty in number. Here the ground was more plain, and the soil very fertile. Northward of Gad, was seated the half tribe of Manasseh, whose territory was called Upper Galilee, or Galilee of the Gentiles, and was almost as large as both the two former portions containing the countries of Bashan, Golan, Hauran, Machonitis, Geshur, and Argob, and nineteen towns. On the west of Jordan, nine tribes and a half had their inheritance. On the north border, the tribe of Naphtali had theirs on the east side, and the tribe of Asher theirs on the west. The chief cities of Naphtali were nineteen. In the territory of Asher lay the country of Cabul, and twenty-one cities; but the Phenicians kept part of it from them. On the south of both these tribes, the lot of Zebulun extended from the Mediterranean sea to Jordan: their cities were twenty-three. Southward of Zebulun lay the inheritance of Issachar; in it were the mounts of North Carmel, and Gilboa, and the valley of Jezreel: its chief cities were twenty-one. Southward of Issachar dwelt the other half tribe of Manasseh, which contains seventeen cities. Southward of Manasseh was the inheritance of the Ephraimites; it abounded with a great many pleasant hills, Gerizim, Ebal, Ephraim, &c., it contained twenty-four chief cities. The territories of these four last-mentioned tribes extended from the Mediterranean sea on the west, to Jordan on the east; but none other did. Southward of the east part of Ephraim's portion lay the inheritance of Benjamin; their principal cities were thirty, and part of Jerusalem. Westward of Benjamin's lot lay the inheritance of Dan; their chief cities were seventeen in

number, and perhaps Joppa ; part of these were taken out of the lot of Judah ; they had also Dan on the north point of the promised land. Southward of the Danites, the Simeonites had their lot entirely out of the tribe of Judah : their cities were nineteen. The portion of Judah lay mostly to the eastward of Simeon, and south of Benjamin. It was exceeding large, containing above ninety, if not one hundred fenced cities, after the deduction of about twenty-four for Simeon and Dan. The land of the Philistines, containing the six noted cities of Gath, Ekron, Ashdod, Askkelon, Gaza and Majuma, all on the west border of Canaan, and south-east coast of the Mediterranean sea, also pertained to Judah ; but though once partly conquered, it was generally kept in possession by the Philistines.

From this brief sketch, it is plain that the face of ancient Canaan must have been covered with cities, In the numerous wars mentioned in scripture ; in the war between the Greeks of Egypt and Syria, in the wars of the Romans under Pompey, Vespasian, Trajan, and others ; in the wars between the eastern emperors and Persians ; and in fine, in those between the Franks and Turks, it has often been deluged with blood. For many ages past, it has had every where obvious marks of the curse. It is almost a desolate wilderness. Of most of its cities we cannot trace the smallest remains. It wants not, however, vestiges of its ancient fertility. When the Jews return to it in the Millennium, it will, no doubt yield them its strength."

The fundamental law of the Mosaic Institutions, was a correct knowledge of the Creator and Governor of Heaven and Earth, and of the relation of man to his Almighty Judge. This is certainly the principle, if not the sole ground of all morality and of all moral happiness, but it was difficult to to preserve the knowledge of God among sensual men, after it had been revealed. Before the flood, profligacy and practical atheism prevailed, and for four centuries after, superstition and idolatry had crept in on every side. Their influence was constantly increasing, and at last became universal, and no people who were left to themselves ever regained a knowledge of the true God. The various idolatrous nations had their civil and religious institutions founded

under the sanction of their peculiar Deity, thus Menes in Egypt gave out that he received his instructions from Mercury; Cadmus at Thebes, from an oracle; Minos in Crete, from Jupiter; Lycurgus at Sparta, from Apollo; Zothranstes among the Arimaspi from their national God; and Numa at Rome, from the nymph Egeria. But Moses did not (as Strabo and Diodorus Siculus assert), proceed in the same manner. He did not deceitfully pretend that he received his laws from the God Jao, but he proved his mission to be really divine by such supernatural works and wisdom as no other lawgiver would ever lay claim to. The whole nation heard God himself speak from Sinai. Neither did Moses employ religion to support his political institutions, but he reversed the usual order, and introduced a civil constitution which was designed, and as the event has proved, was in reality a means of establishing pure religion permanently upon the earth, and of preserving the knowledge and worship of God to the latest generations. The numerous miracles wrought by Jehovah were yet insufficient to perpetuate this worship among them; he therefore, through the intervention of Moses, suffered himself to be elected their king. He gave them the land of Canaan as the royal possession; and the invisible king then published from the summit of Mount Sinai, with circumstances of awful grandeur, the moral law as the worship of the true God.

The civil government was adopted by Moses at the advice of Jethro his father-in-law; to facilitate the administration of justice, he divided the people into tens, fifties, hundreds, thousands, and over each of these divisions he placed judges, who were recommended to him by the choice of the people, as wise, prudent, honest and pious men. They were selected for the most part from the heads of families, genealogists, or other people of rank; the inferior judges in difficult cases appealing to the superior. They received no salary for their trouble, thinking the honour conferred a sufficient reward. After the death of Moses and Joshua, the Jews were constantly intermarrying with the heathen, and relapsing into whoredom and idolatry, and were destroyed according to the divine prediction. The chief object I had in view in transcribing the foregoing remarks, was, to point out the absolute neces-

sity of regenerating the soil and pursuing a sound agricultural policy, which is indispensable to insure health of body, and that peace of mind so necessary to promote and perpetuate the worship of God.

The reader will observe that when the Jews neglected the cultivation and regeneration of the soil, their bodies were stimulated to commit every species of crime, and they gave themselves up to the gratification of the most debasing lusts, and set the laws and ordinances of God at defiance.

Having had an opportunity of paying some attention to the rise and progress of the Roman commonwealth, I will just observe, that like the Jews they rose from a small beginning, and so long as they confined themselves, like the Jews, to the theocracy, they were healthy, powerful and happy. It was to their simplicity they were indebted for their success; so long as they fought for freedom and independence they were powerful and happy; when they drew their sword for valour and glory we see them conquered in the field, and yet refusing to grant that peace for which their conqueror had sued. It has been justly observed that the first Romans conquered their enemies by valour, temperance and fortitude. Their moderation and their justice were well known among their neighbours, and not only private possessions, but even mighty kingdoms and empires were left in their power. Till the age of Pyrrhus they despised riches, and many salutary laws were enacted to restrain luxury and indolence. They observed great temperance in their meals, young men were not permitted to drink wine till they had attained their thirtieth year, and it was totally forbidden to women. Their natural spirit was preserved by sound policy. For some ages they were noted for their chastity, and honesty, which were in great repute among them; but as their power increased, they decreased in every thing virtuous, and stuck at nothing villanous or wanton. The transmarine victories of the Romans proved at last the ruin of their innocence and bravery. They grew fond of the luxury of the Asiatics, and were conquered by the unbounded lechery, vices, and indolence of those nations whom they had subdued. They became as effeminate and dissolute as their captives, and were in a similar state to the Jews under Jehoram.

Virgil has done so much for the Latin name, that the splendour and the triumphs of his country are forgotten for awhile, when we are transported in the admiration of the majesty of his numbers, the elegant delicacy of his expressions, and the fire of his muse; and the applauses given to Horace, the softness of Tibullus, the vivacity of Ovid, and to the superior compositions of other respectable poets shall be unceasing so long as the name of Rome excites our reverence and our praises, and so long as genius, virtue and abilities are honoured amongst mankind. Though they originally rejected with horror a law, which proposed the building of a public theatre, and the exhibition of plays like the Greeks, yet they soon proved favourable to the compositions of their countrymen. When they did patronize the theatres, the flood-gates of immorality were thrown open, which overspread the empire and overthrew them.

When Rome was in her glory they adopted the Mosaic laws of agriculture, and their method of trenching the soil once every seven years, in order to let the soil that had become sterile by long cropping recrystalize. I have paid considerable attention to the Jewish and Roman history, particularly as relating to agriculture, and have had an opportunity of seeing in Mr. Jefferson's library the most extensive works on agriculture and horticulture which he had procured at Rome. I was introduced to a Spanish priest in the island of Cuba, who, whilst pursuing his studies in Rome, transcribed many papers containing the observations made by travellers in the early part of the Jewish policy, and he told me that the Romans pursued the very policy to conquer the world, that the Jews rejected; that the Synod of Rome laid up immense magazines of grain in order to insure abundant supplies in time of scarcity, and to promote the health of the public, as it is well known that old grain is much better calculated to preserve health than new grain, and when the Roman legions were conquering Asia and Africa, the butter, cheese, and grain was raised on the retrenched land, and the roots of the grain and grass never came in contact with manure, as any sort of provisions raised on recent manured land would not keep, and was the prey of vermin, particularly in hot climates,

and was sure to bring on Cholera Morbus and other pestilential diseases.

The Synod were so careful to preserve the health of their armies, that when they could not procure sufficient supplies from the trenched soil, they calcined clay and other earths, in order to fertilize the soil that the food might be wholesome. During their conquests in the hot climates, they never allowed their troops to eat animal food, but when compelled to partake of the food of the heathen pestilential disorders were sure to prevail. We need not wonder at the success of the Jewish and Roman troops, when they pursued such a policy. The Synod of Rome were so well aware of the necessity of preserving health, by the use of vegetable food in hot climates, that in order to set the example, they forbade the use of animal food at their own tables. The Romans by introducing the arts and sciences, with civilization and their wise policy, to those nations they conquered, caused them to be gainers in the end, whilst they themselves were losers, owing to the frequent destruction of their stores, by bad seasons, and the immense quantity of grain necessary to support such great armies. The sufferings of the Romans were remarkably similar to those of the Jews, who though scattered over the globe are much superior to the Romans, for many of them enjoy a comparative freedom, and have preserved their moral chastity to a greater extent than any other nation at the present day; while the Romans are the most degraded slaves to superstition and debauchery. Their great improvements in agriculture, their aqueducts for irrigating the soil, and its regeneration are totally neglected, and the country torn to pieces with factions. They are now governed by a military despotism, lying under the just displeasure of heaven. The money required to support armies to oppress the people, would if turned to the purpose of agriculture soon convert their country into a land of peace and plenty. If the nations would follow the agricultural policy adopted by the Jews under the divine command, and followed by the Romans, laying up great magazines of grain and other provisions, not for the purpose of carrying on war, but for cultivating peace, then we might look for the

ushering in of the millennial day, when "the knowledge of the Lord will cover the earth as the waters cover the sea."

When last in America in 1834, I paid great attention to the medical and agriculture policy, and found the former very much improved, but am sorry to say their agriculture was in a most deplorable state, as travel where I would, I found large tracts of land worn out, and covered with St. John's wort, and other useless and poisonous weeds. The land that was laid down in permanent pasture, top-dressed with recent manure was covered with ranunculus, diseasing the stock and people just as they are in England, though if possible to a greater extent, as poisonous weeds in America are more potent. Wherever I went dyspepsy was a cuckoo's song, particularly among the youth. The use of soda, as an anti-acid has been highly pernicious to the inhabitants of America, as it destroys the mucous membrane of the whole body.

On my return from America, Sir John Sinclair wished me to visit Holland and Belgium to learn the method pursued by the farmers in those countries; accordingly in the summer of 1835 I went, and having letters of introduction from Lord Palmerston to Mr. Jerningham, Chargé d'Affaires at the Hague, and from the Dutch Ambassador in London to the Prime Minister, as well as to other influential persons, I found no difficulty, through their polite attention, in acquiring the information I needed. I also had letters from Sir John to the various societies established for the encouragement of agriculture, and the arts and sciences. The Rotterdam and Haerlem Societies, the Netherlands Economical Society, and the Royal Netherlands Institution, all which encourage agriculture.

On our arrival at Helvoet Sluis and Dortrecht, I began to observe the most unparelled industry, and on our arrival in Rotterdam, I had the satisfaction of witnessing the country reclaimed from the sea by embankments and canals. In recounting my short tour through Holland, I shall confine myself to the description of their agriculture policy; which has been overlooked by many travellers. I began my enquiries as far back as I could get any information, and particularly as regarded the motives that could have induced

the early settlers to undertake so arduous a task as that of reclaiming the soil from the sea. I had a letter to Mr. Marshall of Rotterdam, who was of the utmost importance to me in my researches. I visited with him every thing that was worthy of notice in the city, and found that the Dutch were in the habit of preserving the memory of their great benefactors, by placing their statues in the churches and public places. But the greatest benefactors to Holland in a medical and agricultural point of view were Boerhave, Haller, and Linnæus, to whom they are particularly indebted. One thing which particularly struck me in passing along the streets, was, the absence of chemists shops; and here for the first time my ears were greeted with the joyful sound, that there was no mercury allowed to be given to the inhabitants of Holland, for if a physician were to administer a single grain of mercury, he would be liable to an action at law, which was sure to bring heavy damages. To this salutary law, the great increase of inhabitants in North Holland may be attributed. I was there introduced to a physician of the first eminence, who informed me that before they began to prosecute the doctors, the inhabitants of Holland were diseased by mercury and antimony to a fearful extent, which rendered a full fifth of them cripples. He was then publishing a work against the use of mercury, which with all acrid and corrosive substances is sure to aggravate every disease, particularly scrofula, fluor albus, consumption, and all diseases arising from a scrofulous habit of body; and sure to prove fatal in cancerous diseases. Ten years previous the diseases were quite unmanageable, but since the abandonment of mercury, they were becoming more mild every subsequent year. He fully agreed with me that the ranunculus tribe of plants was highly destructive to health, being the primary source of most inflammatory diseases, and cutaneous affections. If his work, as was his intention, should be translated into English he will confer a great benefit on this country.

After leaving my friend the Doctor, I went to visit the cheesemonger, and procured from him the addresses of the best farmers in Gouda. He requested me by smelling the cheese and butter, to point out the best and worst farmers,

which I did correctly, and was sorry to say that the butter and cheese were becoming worse and worse among the majority of farmers. On our ride to Gouda I was much astonished at the great number of cows pasturing on so small a space of ground, but when I arrived there my wonder ceased; for I found all the farmers irrigating the soil.

The farmer to whom I was introduced was ill with mercurial rheumatism, and had spent the best part of the last fourteen years in bed. I found him the wreck of one of the finest men of the age, being eighty-six years old. His father was a wealthy man, and intimately acquainted with Boerhave, and Haller, and was a devoted disciple of Linnæus. I asked many questions about the stature of the people, and his head being a perfect chronicle of the events that had happened for the last century, I found no difficulty in obtaining satisfactory answers. He observed that the people were diminished much in stature, and were not so robust and healthy as in former years. Such an object of disease as he was, could scarcely be found in his early days, before mercury was administered. He shewed me his knee joints, which on the least movement rattled like sticks. He regretted not being able to help his children, as they were almost worked to death to meet the taxes for supporting an army of 120,000 men, which was sucking the life's blood out of Holland, filling the country with money brokers and money changers. I learned from him how it was that the original settlers undertook to reclaim the soil from the sea, and he told me that their motives were better explained by Linnæus than any other person. Their idea was, that by so doing they had the four component principles of the soil in its purest state, and it would last for many centuries before it became cankered or corrupt. Their extraordinary labour I could at once see, was more than compensated by the fertility of the soil, and the superior excellence of its productions. He observed that from 1660 to 1730 the *Phaseola Hepatica*, or Gourd worm or Fluke of Linnæus, next in genus to the leech, and the *Ranunculus Acrus*, and *Ranunculus Flamula*, had been very destructive to the stock, until Linnæus found a specific for both. He discovered that salt was sure to destroy the fluke, and recommended to put the stock in the house in summer,

and give them salt in meal or bran every day for a week. The first thing in the morning he fed them on dry hay watered with salt and water, and he would not allow them to pasture till the fields had been watered where the cattle had dropped their dung, as the young flukes were crawling round the heaps. He recommended watering the fields and mowing the grass, and feeding the cattle in the cow house or yard; as sheep and cattle that had flukes, were voiding the ovum of the fluke in millions, particularly in wet seasons. Such as pastured their cattle in the fields, he recommended to have a boy with a barrow and when the cattle dropped their dung to lift it, collect it in heaps and sprinkle it with salt and water, by so doing they would kill the flukes; to save the dung to make compost of, and furnish a third more pasturage, as the cattle will not touch the pasture where the dung has fallen. He advised them to soil the stock, which was adhered to, until the whole of the flukes were destroyed, and lay no dung on fields but what was composted with salt, lime, wood ashes, or other alkalies.

As to the *ranunculus*, he was of opinion that it was necessary to destroy them, as from their acrid quality they would ruin the character of their butter, and destroy their stock, particularly sheep. While he was at Hartecamp arranging a botanic garden for Dr. George Clifford, Burghermaster of Amsterdam, he made many experiments on the various plants best calculated to improve the health of the stock, and the quality of the milk, butter and cheese; also on the different species of grasses suitable to the various soils which were regularly published for the information of the farmers. My old friend informed me, that they had the most part of Holland in the best cultivation, and from 1736 to 1796 the Dutch farmers had accumulated more wealth than any other nation. In former times the Dutch made a large amount by their fisheries, but the great staple commodity now is butter and cheese.

Before Bonaparte took possession of Holland, they had it was said, forty-eight millions of bullion in the bank, a larger sum than any nation in Europe was ever possessed of in bullion. Bonaparte found it would be a fine speculation and directed his march for Holland. When he came

to Ostend he demanded so much money, which they were rather unwilling to grant, but a shower of bombs as a second message, caused the money to be forthcoming immediately. He served them so when he advanced to Amsterdam, where they intended to fight, but on his threatening to break down the dykes and let the sea in on them, they reluctantly opened the gates of Amsterdam to him. Being in want of beef for his troops, he was amply supplied by killing the cows, as they are in tolerable good order at that season. The farmers for want of cows to pasture their fields, were obliged to plough up their pastures and sow grain and hay for the supply of the troops. When the peace came they had no seed to sow, and sent to England for hay seed. They received accordingly a great supply of dock, ragweed, ox-eye daisy, Euphorbia or spurge, poppy, corn, horsetail, dogs mercury, with every species of ranunculus, and potentilla anserina, the latter plant the cows would not eat. My aged friend told me it would take two millions of money to eradicate them from the Dutch pastures. The butter and cheese in consequence has very much deteriorated in value, and the loss on the shipments sent to the East and West Indies in consequence of its bad quality, being so liable to spoil, cannot amount to less than £500,000 sterling a year, which to a country not much larger than Yorkshire, must be a great loss. My friend gave me a short detail of the immense injury to which the present protocol army subjected the country. They taxed both land and water, as they durst not draw a fish out of their canals without a licence. The king with his stock jobbing government had invented a law which proved most ruinous to the country. For every hundred guilders they paid in taxes, they were to loan the government one hundred more, for which they were to receive five per cent; but few could scrape more than enough to pay the taxes.

After proceeding thus far in my enquiries it was drawing near six o'clock, when I saw the young men and women come from the field to milk the cows, and make cheese and butter. They had then what would have been considered in this country a day's work to perform. I saw the milk warmed and the rennet added; when they are making

the sweet milk cheese, the whey is so rich, that it is put into wooden vessels, and after standing three days in hot weather, and a week in cold, the cream is then skimmed off and churned, or the whey is put into the churn, and the butter is formed in about an hour. It was very good, but I was perplexed to know how it was there were so many hairs in the butter that came to England. They accounted for this by saying that the most of that was whey butter, and as the cow houses are generally attached to the dairy, when the cows are casting their hair the wind carries it about. They take out as many as they can with an instrument which they have for the purpose. They have from each cow $1\frac{1}{2}$ lbs. of butter, $17\frac{1}{2}$ oz. to the pound in summer, and 1 lb. in winter from the whey; this farmer had about 75 lbs. of butter from the 50 cows per week. The old man grieved much at their inability to do justice to the soil, which in its deteriorated state would decrease their productions.

I am sorry to observe by the king's speech that the loss of the stock has been so great. Had he sent the whole of his troops to trench the soil and destroy all the poisonous weeds, he would not have had to lament the loss of the stock, and to whine over the burdens of his people. On leaving Rotterdam, we proceeded to the Hague by way of Delft, and all the way, I was still amazed to see the immense number of cows which were pasturing in the same field. The roads were paved with brick set on edge and as smooth as a bowling green, with a canal on each side. The farms were from one hundred to two hundred yards in width, with a canal on each side for conveying the produce of the farm and transporting the manure to the different parts of it. The canals serve for the purpose of draining the superabundant waters from the farm, which is done by windmills. In order to keep them from stagnating, they let the water in from the Rhine and other rivers by means of sluices. The time of opening the sluices is regulated according to the tide, and the canals are filled nearly to a level with the pasture fields, which in warm weather causes the grass to grow prodigiously; and I am sorry to say it increases the poisonous weeds and the flukes. I must give credit to a number of farmers whose pastures were remarkably free of weeds, and their butter

consequently of the best quality. They had women and children in the fields picking out the *Ranunculus*, *Nardus*, *Carex*, *Juncus*, *Equisitum*, *Cardus*, *Euphobia*, *Mercurialis*, and other poisonous plants, so that their farms produced a fourth more grass, than those that were so foul. I found their stock in fine condition, which was particularly attended to, as they kept large lumps of rock salt for the cattle to lick at pleasure, this destroyed the fluke, or prevented them from generating in the cattle's stomach and liver. I enquired of a number of the farmers, if they knew of any plan of getting rid of that terrible pest, or whether they thought it would live through the winter in the canals. They observed, that it was an insect imported with the Gourd from a warm climate as Linnæus states, and could not be preserved in the canals through the rigour of a Dutch winter, but must be in the stock, and propagated by passing the ovum and young flukes with their dung. When once affected, it is almost sure to kill them, unless they are plentifully supplied with salt. To prevent their propagating in the fields, many of the farmers are in the habit of littering their cows in the winter with sea sand, which is sure to kill them, and when mixed with the dung and combined with peat earth and clay is admirably adapted to fertilize the soil.

Some of the Dutch farmers are very particular in salting the dung-heap and mixing it with lime, and Dutch ashes. They never plough the land, but top-dress it in the fall or spring of every third year with the manure so composted, and the cleanings out of the small canals. In some situations they top-dress it every second year and in others every year. From the mode of irrigating the soil in many situations, it but seldom requires top-dressing, except to destroy mosses and fungus plants. I generally observed throughout Holland the great want of salts and alkalies. On examining the roots of the grass I found the absorption of the soil was excessive, that not only the salts and alkalies were extracted, but even the salex or sand was absorbed and had entered into the composition of the grass. Even the stalks of the corn were more strongly coated with salex than any I had ever seen. I would suggest to the Dutch farmers the propriety

of composting with a large proportion of sea sand, and of salting the manure heap strongly, particularly if it is to be applied to a stiff clayey soil. That part of the pasture that has been top-dressed, is the first year reserved for hay, and the cows are not suffered to pasture on it for two years. Some farmers top-dress with Dutch ashes, lime and gypsum, which not only destroys insects and mosses, but is very good for fertilizing the soil. The more aged farmers were at a loss to account for the great superiority of the butter sixty or seventy years back, which no doubt was owing to the great quantity of salt then contained in the soil, and which is being yearly extracted from it. When the salts and alkalies are extracted from the soil, oxygen is in excess, and every thing raised on such soil has a strong tendency to become sour.

On our arrival at the Hague, I presented my letters of introduction to the various scientific men there, and to the Chargé d'Affaires, who introduced me to many of the professors at Leyden. Quiles Van Wyfford, Secretary to the Agricultural Society, gave me every information respecting the Agriculture of Holland, and the shock it received by the invasion of the contending armies during the war and at the late revolution in Belgium. He was quite aware of the great benefit Linnæus had conferred on that country by his indefatigable industry and practical experiments. I met with the clergyman who was connected with the Embassy, and he and an English lady who had been a long resident in Holland, assured me of the determined stand the Dutch had taken against mercury. At Leyden I went into the botanic garden, where I had an opportunity of looking on the bust of my great master Linnæus, one of the greatest and most scientific benefactors of man, who in his arrangement and classification of the mineral, vegetable, and animal kingdoms has no parallel in the history of man. He begun his *genera morbum* or classification of disease while at Leyden, and I had the pleasure of sitting in the chair in which he composed it. Whilst surveying his bust I lifted up my heart in gratitude to God for the great gift he conferred on a benighted world, of which he was truly the physical, moral, and intellectual

sun. His sexual system will stand when all the innovators of his works with their productions will be forgotten or despised.

The great object of Linnæus after he had laid down a systematic plan of arrangement, and classification of the three kingdoms of nature, was to separate the poisonous from the farinaceous, and leave an admirable guide, whereby the physical properties of all plants may be correctly known. He experimented on the powers of the plants known to the ancients, and particularly those that were described and registered in the temple of Esculapius. As many modern physicians despised the correctness of the specific powers ascribed to them by the ancients, Linnæus took a number of his pupils with the thermometer and barometer to see what difference there was in the specific powers of the same plants in altitude, latitude, and the different qualities of the soil, under the difference of cold, heat, temperate, wet or dry seasons. The trial was made for seven successive years; he sent a number of his pupils to every quarter of the globe to obtain their various productions, observing the above instructions. When the experiment was finished he found the ancients to be correct, and the moderns wrong. The Rev. Dr. Mhulenburg of Lancaster was one of Linnæus's favorite pupils, and assisted him in his experiments. The valuable plants and grasses he introduced among the farmers of Pennsylvania gave them the lead of all the other States in the value of their agricultural productions. In consort with Mr. Bartram, and Professor Kalm, they left but little in North America to discover on the subject of botany.

I was much concerned to find that the French whilst in Holland had laid aside the Linnæan arrangement, and had adopted the Jussieu system, or what he calls his natural orders, but which might with more propriety be termed natural confusion or unnatural orders, as the poisonous and wholesome plants are confused one with the other, so that they serve no purpose as a guide in a medical point of view, for many plants in a dry soil are bland and wholesome, whereas in a wet soil they would be a perfect poison. Plants having a nectary distinct from the petals, are commonly poisonous, also lactescent plants are commonly poisonous.

Vernal flowers are mostly acid. Umbellate plants in dry places are aromatic, heating, expelling, in watery, poisonous. The sapid and sweet smelling are good, the nauseous and strong smelling poisonous; these notions are inscribed in the senses of all animals, according to the texture of each body. A pale colour denotes insipidity, a green crudity, yellow bitter, red acidity, white sweetness, and black an ungrateful taste. The use of plants for the food of animals, should be most anxiously enquired after, the uses of plants shewing the economy of universal nature, should be anxiously explored.

The foregoing is extracted from Linnæus's admirable dissertation on the powers and economical uses of plants, which clearly points out the impossibility of arranging those plants in natural orders, which so are dissimilar in virtue. Linnæus pursued the natural orders much farther than Jussieu, and in his arrangement where he found nature would not bear him out, he had to follow her by another path, and grouped together the physical powers which is his masterpiece, and one of the greatest productions that ever came from the pen of man. I was quite astonished when Mr. Donn informed me that the Linnæan Society in London had not that work, neither had they it in print at Leyden. The professor told me he had seen the original manuscript, but did not know at the time where to find it. When compiling his work he met with much opposition from the French, who were jealous that such an obscure individual as Linnæus, should rise superior to the energies of a great nation. He was constantly harassed by letters advising him to desist, which led him to compare himself to a bear pursuing a steady course through a forest, and being teased by a number of monkies, still went on his way cuffing them with his paws, and beating them down on either side. This he sent to the French botanists, as the last epistle he would dedicate to them, which so enraged them that they would never pardon the affront, but began to create a system in direct opposition to his. Like Sir Isaac Newton, Linnæus represented nature, not to answer the whimsical notions of mortal beings, but as he found it arranged by the Governor of the Universe.

I visited Hartecamp, and carefully observed the herbage

as I went along, and took a catalogue of the following ; *Lathyrus Sylvestris* or everlasting pea ; *Lathyrus Pratensis* or meadow vetchling ; *Vicia Cracca* or tufted vetch ; *Ervum Hirsutum*, rough podded tare ; *Ervum Tetraspermum*, smooth podded tare ; *Trifolium Repens*, dutch clover ; which is one of the best clovers for pasture ; *Trifolium Ochroleucum*, yellow clover, which gives the butter a fine yellow colour ; *Trifolium Arvense*, haresfoot trefoil ; *Trifolium Fragiferum*, strawberry trefoil ; *Trifolium Agrarium*, hop trefoil ; *Trifolium procumbens* or procumbent trefoil ; *Lotus Corniculatus*, bird's-foot trefoil or milk vetch, as cows that pasture where it abounds give a greater quantity of milk, and of richer quality ; *Trifolium Incarnatum* or red clover ; *Trifolium Pratense* or field clover ; *Trifolium Medium*, cow grass clover ; *Trifolium Rubens* ; *Medicago Lupulina*, hop clover ; *Medicago Arabica* or heart clover : both of these grow on dry or sandy soil, and are extremely good for sheep. *Festuca Fluitans*, flote fescue grass, growing in ditches and moist land, is an excellent grass for the cattle in winter, when steamed ; *Festuca Elatior*, tall fescue grass, good when steamed ; *Festuca Pratensis*, meadow fescue grass, one of our best and moist hardy meadow grasses ; *Festuca loliacea*, darnel fescue grass ; *Bromus*, broom grass. Although the broom grasses have been generally considered too rough and hard for food, as they contain in their composition a large quantity of salex, yet when chopped and steamed they make excellent food and good butter. Some of the species will thrive on worn out sandy soil. *Avena Flavescens* or yellow oat grass. This species contributes to the goodness as well as to the extent of the hay crop. *Hordeum Murinum*, wall barley ; *Melica Nutas* or melic grass ; *Poa Aquatica*, water meadow grass ; *Poa Pratensis*, smooth stalked meadow grass. This is one of the most valuable sweet grasses and eaten readily by cattle in general. It carries its verdure in winter better than most others, and throws young and numerous shoots in the spring, so as to make good spring food. It produces a good crop of leaves at the bottom which makes fine hay, and is fit for cutting early in the spring. *Poa Trivialis*, rough stalked meadow grass. A good meadow can scarcely be found without this. *Poa Annua*, common

dwarf poa ; *Poa Procumbens*, procumbent meadow grass ; *Poa Retroflexa*, reflexed meadow grass ; *Poa Rigida*, hard meadow grass : the three last grow in a dry soil and well adapted for sheep. *Alopecurus Pratensis*, meadow fox-tail grass ; *Alopecurus Myosuroides*, field fox-tail grass, it is sweet and apt to be affected with the ergot ; *Milium Effusum*, millet grass ; *Holcus Mollis*, creeping grass ; *Holcus Lanatus*, meadow soft grass ; *Agrostis Setacea*, sheeps fascue grass ; *Aira Aquatica*, sweet tasted water grass ; *Aira Caryophylla*, silver hair grass ; *Anthoxanthum Odoratum*, sweet scented vernal grass. This grass ought to form a large portion of every hay or grass field, for it will grow in almost every kind of soil ; it thrives remarkably in most of the pastures in Holland, and gives the butter a most delicious flavour. *Holcus Odoratus*, sweet scented meadow grass ; this is also much cultivated in Holland ; *Lolium Perenne*, rye grass, sheep are fond of this grass when young ; *Agrostis Stolonifera* or butter grass ; this plant increases the quantity and quality of the butter. The Dutch at present have too much neglected the cultivation of it along the margin of their canals, as it would prevent the earth from falling in, whereby the canals are too much widened. When the roots are cut out of the canal so as not to choak it, they can be dried like hay, soaked in water, and given in the mash to the cows and ewes after bringing forth their young. It is the best substitute for grass that can be given. There is another plant which would be of inestimable value in Holland ; it is the *Zizania aquatica* or Canadian wild rice ; this would be a most profitable acquisition, as it would thrive well in the canals. The young stalks are eagerly eaten by geese, and ducks and wild fowl of every description. The cultivation of it would produce more ducks than could be wanted for the consumption of the country. The seed can be readily obtained from Canada.

I have thus given a catalogue of a few of the clovers and grasses, most of them growing at Hartecamp, though I am happy to say not confined there. I could, had time permitted, have made a more extensive collection, but the above will I trust be sufficient to set an example to our farmers. After the peace of 1815, most of the farms were poisoned with foul

seed as before stated. This was particularly so in North Holland, where the people became affected with scrofulous, cancerous, and cutaneous disorders to a great extent; consumption, bronchitis, asthma, fluor albus, chlorosis, and remittant, putrid, bilious, nervous and puerperal fevers. This continued till 1825, when a tempest broke down the sea dykes in Groningen and Vriesland, when the whole country became inundated with salt water which was supposed to be the greatest calamity that could befall them, whereas it turned out to be the greatest blessing.

After they got the dykes repaired, and set the numerous windmills to work, they soon pumped out the salt water; the consequence was, that all the springs and wells were poisoned with salt water, so that they had to live on rain water, and used every means to preserve it, till they could procure it from the fresh water rivers, which contributed much to their health. The next great advantage was, so much salt destroyed every fluke and other insects, that might be in the stomachs and liver of the animals; but the still greater benefit was, that the salt also destroyed all the poisonous weeds and insects in every part of the country that was overflowed, to the great improvement of the health of the inhabitants of Amsterdam, a city built in the midst of a pestilential marsh on piles; and when the tides and canals are low, is subjected to the most horrible smell that can be imagined.

It also may be stated that notwithstanding all the disadvantages this city is subjected to, in respect to public health, in consequence of the superior quality of the food, Amsterdam is the most healthy city in Europe. It is true the total abandonment of mercury for the last fifteen years, has contributed much to the health of the inhabitants of Holland! From the year 1825 to 1835 notwithstanding the wet seasons of 1828-29 and 30, which proved so fatal in all damp countries; the city of Amsterdam proved to be the most healthy, as will be seen by the following extract from the Metropolitan Magazine, June 1835.

“Many philanthropists and men of science in Holland and Belgium have not only made laborious researches into the causes, chiefly conducive to pauperism, but have exerted

themselves to discover" "the most efficacious method of ameliorating the condition of the lower orders, and of providing for the necessities of those who depend upon others for their support" "evils unfortunately inseparable from increasing population, and which augment rather than diminish with the progress of civilization and the diffusion of luxury among the higher orders. If their benevolent intentions have been frustrated, as far as regards the diminution of pauperism, they have, at all events, succeeded in devising a wholesome and economical system of administering the funds devoted to this object. By which system, whilst encouragement to idleness and mendicity is avoided, a fair provision is made for the mass of those, who, in lieu of contributing to the general health of the state, may be looked upon as inevitable cancers that consume its most nutritious juices—sinecurists of the most unprofitable kind."

"It is the indispensable duty of every man in easy circumstances," says Professor Quetelet,* "to succour his fellow creatures pining in indigence. Especially when this indigence arises from unmerited misfortune, or is the result of infirmity or age. But acts of benevolence ought to be spontaneous, and not the fruit of importunity or compulsion. Mendicity then becomes a misdemeanor, not only because the law places it beneath this category, but because it troubles the repose of citizens, and compromises the general welfare.†"

"These observations may be applied to England, where, by direct parochial taxation, the burdens of the citizens are arbitrarily inflated to an amount nearly equal to one-fourth of the whole revenue extracted from the country for national

* *Recherchez sur la population, naissances, décès, &c. dans le royaume des Pays bas.* Par A. Quetelet. 8vo. Brussels.—Sur la possibilité de mesurer l'influence des causes qui modifient les élémens sociaux. *Idem, idem.*—Professor Quetelet is the Director of the Royal Observatory of Brussels, and Secretary to the Royal Academy.

† An imperial decree, dated Bayonne, 5th July, 1808, forbids mendicity throughout the French Empire, and orders the arrest of all beggars and vagabonds. Another decree, dated 27th October, 1808, directs all persons of this description to be imprisoned in jails reserved for this purpose. The Code Napoléon declares mendicity or vagrancy to be a misdemeanor, punishable with imprisonment.

purposes, and this, independent of the enormous sums annually disbursed in private charities and schools.

Prior to the revolution in Belgium, the amount of poor receiving succour bore a formidable proportion to the mass of the population, although the commerce and industry of the Netherlands were affirmed to be in a state of unrivalled prosperity, and although the government earnestly devoted its solicitude to the amelioration of the labouring classes. For we find the gross total of the inhabitants of the nineteen provinces, including the Grand Duchy of Luxembourg, to have exceeded 6,200,000, and the number of registered poor receiving relief 690,000 of all ages and denominations, including 10,000 delinquents, confined in different prisons. That is nearly one-tenth of the population living wholly or partially at the expense of the remainder.* This large body of indigent persons was disposed of, and provided for, in the following manner.

Number and Denomination of Establishments.	Individuals.	Average Annual Cost for each person.
Houses of Refuge 716	31,600	124·0 florins
Foundlings 19	12,400	57·0 „
Succoured at Home 5,336	637,500†	8·0 „
Charitable Work-Shops 39	6,000	64·49 „
Workhouses 8	2,400	97·69 „
Total receiving Alms .	690,000	

The gross sum annually expended in the above-mentioned charities, amounted to about 10,600,000 florins, equal to

* Professor Quetelet gives the population of the Netherlands, on the 1st of January, 1826, as 5,992,666, and both he and Baron de Keverberg calculate the mean annual increase at about $1\frac{1}{4}$ per cent. Admitting these calculations to be accurate, the amount of population for Holland and Belgium in 1833, would be 6,536,000, that is, 2,414,000 for Holland, and 4,122,000 for Belgium. Supposing the treaty of 15th November to receive its execution, it will be necessary to deduct 174,000 for Limbourg, and 153,000 for Luxembourg, making 327,000 to be added to Holland. This will increase its population to 2,745,000, and reduce that of Belgium to 3,791,000; but upon adding the increase of 1834 and 1835, the remainder may be taken at nearly four millions.

† In this number are included 53,000 children, educated at 316 schools, at an annual expense of 4 florins 54 cents each.

about one-eighth of the general budget of the Netherlands' government, which averaged eighty-five millions, including the million devoted to the assistance of the manufacturers. This analogy between the proportion of the number of poor to the population, and the expense of their maintenance to the whole budget, merits consideration. It may serve as a tolerably correct basis whereon to calculate the aggregate of the one by the sum of the other; that is, in ordinary times. For it must be borne in mind that the foregoing tables are the average of several years, not that of any definite period, and that they refer to an epoch during which the Netherlands had enjoyed a state of uninterrupted repose, and had attained a degree of mercantile prosperity apparently most inimical to the augmentation of pauperism. This analogy may likewise serve, in some measure, as a guide to the state of mendicity in France, where the mode of life of the labouring classes, and the various influences affecting the social system, bear a strong affinity to those of Belgium; with this discrepancy, that there is less general fertility in the soil, less frugality in the people, and a somewhat smaller degree of fecundity in the human species in the former than in the latter country. The proportion between the two being, France 476, Belgium 480 births, per 100 marriages.

It also results from various accurate statistical documents, that the faculty of preserving life during infancy, and prolonging its duration when individuals have attained the age of puberty, is likewise in favour of the Netherlands, and this accounts for the rapid augmentation of its population. One or two examples will suffice to demonstrate this position. Firstly, it appears that the period at which the chances of life and death are equal is, in France at 21, and in the Netherlands at 31. Secondly, the medium duration of human existence is 44 for the one, and 47 for the other. And thirdly, supposing an individual to have attained his fortieth year, the probabilities of a further extension of life are 23 in France, and 26 in the Netherlands. It is almost unnecessary to add, in regard to the first of these instances, that as the faculty of fecundising ranges principally between 20 and 31, the powers of increasing are consequently more strongly in favour of Belgium and Holland. Another highly curious

combination of the foregoing facts may be elicited from the following tables of mortality amongst children in the different European capitals.

*Calculation of the Loss per 100 amongst Infants.**

During the first 12 Months.		From 1 to 10 Years.	
Switzerland . . .	19 per 100	Switzerland . . .	34 per 100
Amsterdam . . .	19 "	Holland . . .	36 "
Geneva . . .	19 "	Geneva . . .	39 "
Belgium . . .	22 "	St Petersburg . . .	41 "
France . . .	23 "	Belgium . . .	43 $\frac{1}{2}$ "
St. Petersburg . . .	27 "	France . . .	44 "
Sweden . . .	28 "	London . . .	48 "
London . . .	36 "	Sweden . . .	50 "
Berlin . . .	39 "	Paris . . .	52 "
Vienna . . .	45 "	Berlin . . .	54 "
		Vienna . . .	55 "

One circumstance attending these calculations, and those of Professor Quetelet, is highly deserving of attention. It appears that while the mortality among infants, in every capital city of Europe, surpasses that in their respective provinces, it is exactly the reverse in Belgium and Holland: the result being $43\frac{1}{2}$ for the country, and $42\frac{3}{4}$ for the metropolis. In France the proportions are 44 for the departments, and 52 for Paris, making a difference of 8 per cent. between Paris and the country, and $9\frac{1}{2}$ and 16 between the former and Brussels and Amsterdam. It is evident, therefore, either that the air of the two latter is more salubrious, or that the method of rearing infants must be superior to that in the provinces—a phenomenon in direct opposition to the statistical returns of all the other European nations."

It is clear from the foregoing very interesting extracts from the researches of Professor Quetelet, that the view I have taken of the causes which have led to the extraordinary health of the inhabitants of Amsterdam are correct, and the observations of M. Benoiston de Chateau-Neuf, in speaking of the disproportion between the mortality of infants in Paris,

* These tables are extracted from a work, intitled "Considérations sur les enfans trouvés dans les principaux états de l'Europe." Par M. Benoiston de Chateau-Neuf, Paris, 8vo.

† Mean term of Netherlands, 39; we have omitted fractions throughout.

and the Netherlands, is most enormous, he says, "that in order to preserve infantine life, care effects every thing, and climate little or nothing, and that Holland and Switzerland are the countries where fewest die," a most absurd conclusion, and quite at variance with the observations of wise men in every age. Had M. Benoisten observed that food was every thing, he would have been nearer the truth, as it is well known that scripture, nature, reason and common sense point out that good air is of the utmost importance to the preservation of health; good water and food will enable both infants and adults to resist the effects of bad climate; as we have seen in the race of the Roman legions when they were engaged in conquering Asia and Africa, which shews the perverted system of education in France, and most colleges in Europe; according to the common cant of the day, air is to perform every thing, and food is left out of the question. Diseases progress with a most wonderful rapidity, and it must be expected, since they are manufacturing as many doctors at the various colleges in Europe as would be sufficient to physic the sun, moon and stars! How very different was the policy pursued under the Jewish theocracy, they had no doctors, for Moses knew if the inhabitants lived on good food they would enjoy the most perfect health, therefore, he made no provision for doctors under the Mosaic law. The Romans in their prosperity made use of the same agricultural laws that the Jews had neglected and rejected, and when for six hundred years they were pursuing their conquests over the globe, they had not a doctor among them, nor an hospital in the whole commonwealth; and during that period they enjoyed the most perfect health.

While I remained at Amsterdam I received the most polite attention from Mr. Sickles, Banker, and from an English advocate, who pointed out the various acts prohibiting the use of street manure, and particularly that from the water-closets, as it was sure to bring disease among the stock and the inhabitants, unless mixed with salt, lime, and wood ashes. One or two centuries ago every care was taken to preserve the health of the public, by the governments of Germany, Holland, Saxony, and the various German states, but if we are to judge of the conduct of the various governments

of Europe of the present day, it would appear that the public health was of minor consideration with them, particularly in England, for since 1827 we have been terribly scourged with influenza; year after year it has been fatal beyond any thing known since the plague, as it was called, which according to Dr. Hay, arose from diseased rye and wheat, and who recommended his countrymen to make use of oatmeal, which preserved and kept them in perfect health. When they nursed the sick and buried the dead many were left with ample fortunes which their offspring inherit to this day.

Dr. Adam Neale on Animated Contagion, a work founded on the doctrine of Linnæus, and highly deserving the attention of government, has proved pestilential diseases to have been caused solely by the use of diseased meat, and drink; and the insects attacking the human body.

At a Meeting of the Westminster Medical Society, as reported in the *Lancet*, January 27th, 1838, Dr. Addeson made some remarks on the present prevailing Epidemic, and also on some disorders by which it seemed to be succeeded. After giving a good description of the diagnosis of the present epidemic, and the various symptoms during the progress of the disease, he observes, "these symptoms would go on for three or four weeks and then terminate in a slow and unsatisfactory convalescence. The affection was peculiar in attacking all ages indiscriminately, he, Dr. Addeson had seen many instances of it in children, with respect to the prognosis, this disease was almost sure to prove fatal to the aged. Regarding the affections which might be considered as a sequelæ of the epidemic, he had observed of late, cases of cutaneous disease accompanied with great constitutional debility, such as he had never seen before." During the whole conversation not one word was said about the cause, of which I was fully aware last June and July, as our hay and pasture fields were then literally covered with poisonous weeds to a greater extent than I ever saw before.

The summer being dry, the hay or rather the poisonous weeds were well cured; in consequence, the butter, cheese, and the fat of butcher's meat is powerfully saturated with the oil of the poisonous weeds, causing great nervous eruptions,

and inflammation of the mucous membrane of the whole body; and producing the eruption resembling scarlet fever and mercurial erythema. I have had a number of cases, and have observed the most excessive debility; and had the Medical Society pointed out the cause, they would have conferred a lasting benefit on society, as the people would have steered clear of the stumbling block that lay in the path leading to health and happiness. As the whole works of God are cause and effect, the notions and reasoning of medical men for the most part is reasoning on effects without a cause, and the people in consequence stray in endless error; as there never was an effect without a cause.

After visiting most of the butter shops in Amsterdam, I saw a great quantity of bad butter said to be imported, and not the produce of the country, and some of the finest samples from Groningen and Vriesland that I ever tasted, but could not procure any of it, the whole being bought up for exportation by the speculators. After visiting every thing worth notice in Amsterdam, I took a travelling carriage to Antwerp, where I had an opportunity of observing the extraordinary improvements that had taken place by the generations that are past. I found all over Holland agriculture in a very depressed state, and the spirits of the people very much broken down in consequence of the exorbitant taxes. I then proceeded to Brussels through one of the finest countries in Europe, I am sorry I cannot describe that interesting country; as the limits of this small work will not allow. On our arrival at Brussels I presented my letter of introduction to Sir George B. Hamilton, who received me with polite attention and gave me an introduction to Lieutenant General Hoogvoorst, who treated me with the most marked attention and gave me much valuable information respecting the state of agriculture in Belgium, which was in a most flourishing condition; there is probably no country in Europe, with the exception of the Lothians in Scotland, where agriculture is carried to such perfection, as far as the cultivation of grain is concerned. As to their dairy farming, it is the best in the world, they feed their cows in the house in summer from green clover and cut grain, and swill made from meal, bran,

and salt; they dry the clover to give to the cows to make them chew the cud; the byre or cow houses are large, well ventilated and paved with brick, with a passage between the cows head and the wall for feeding them, there are windows in the wall for ventilation, or shutting out the air in stormy weather, the stalls are from five to six feet in width, and raised a foot or eighteen inches above the part of the byre behind the cows, so that the dung and urine falls behind them, and they are in consequence kept particularly clean. They are regularly carded or curried every day, and in the hot weather the byre is cleaned in the morning, and watered several times during the day to keep the cows cool, they make the finest butter and send it in great quantities to Paris and other cities in France. Their hay fields present the finest appearance I ever saw, the land was in such fine order that the heads of clover when chewed filled the mouth with honey; and when mixed with appropriate grasses, it makes the cows give the most delicious milk in the world. A lump of rock salt is laid in the corner of the manger for the cows to lick at pleasure, hence the butter requires but little salt to keep it, particularly in hot weather. They follow the routine of cropping, so that the whole country is perfectly clear of weeds. In the Pays Bas and Flanders the farmers where the soil is light, sow a large variety of *Spurgula* or Spurrey, one of the best plants known for increasing the quantity and improving the quality of the milk and butter, they were pulling and bundling it as we do flax; they have been in the habit of cultivating it most extensively for almost a century, it was one of the plants recommended by Linnæus to increase the quantity of milk, it adds much to their winter store, makes their bullocks and sheep fat, and cause their fowls to lay a great store of eggs. When made into broth it increases the quantity of milk in nurses and makes their children thrive, it also prevents the accumulation of phlegm. In that country, particularly in wet seasons, a cataplasm of the herb applied to cuts or bruises quickly heals them; the seed powdered and given from half a dram to two drams in a morning, will evacuate the stomach and bowels of phlegm and slimy matter and restore the patient, such are the wonderful effects of the boun-

ties of providence, to those who have sense to use them. They have been in the habit of trenching the soil, in a great portion of Belgium every seven years. I took a spade and dug down to examine the crystallization of the soil at the bottom of the trench, and found the soil required salt; I would strongly recommend the Belgians to lay salt at the bottom, as it will crystallize the earth most rapidly, being a flat country; also to lay iron pipes to convey salt water along the line of railway to water the soil in winter, and when trenching the soil the first eight or nine inches, that at the bottom of the trench ought to be well watered with salt water, before the other eight inches are laid over it; at the period of retrenching the soil it would be so perfectly crystallized with the rank dung at the bottom of the trench, that it would bear five or six years strong cropping without manure, and might be pastured the sixth year, by that means the increase of the produce of Belgium might easily be doubled.

When education becomes more general among the Belgians, they will become a great people, and even now it may be said to be one of the most happy countries in Europe, should the demon of war keep away from her happy borders. Belgium might provide in independance more than three times the number of people and be abundantly supplied with all the necessaries and luxuries of life, indeed when we take a view of their mode of cultivating the soil and feeding their bullocks or cows with green cut grain and clover, the cleanliness of their food must increase the health of the stock, and consequently of the inhabitants.

How different is the policy of England where they top-dress their pasture fields with recent corrupt manure in which the numerous bullocks and cows are pasturing. The quantity of manure dropped over the fields, compels the animals to eat their own manure, so disgusting to their nature, as it ought to be revolting to ours. In the fall of the year during wet weather, the fields are floating with it and the herbage tastes strongly of the dung; it gives the butter a most horrid smell after being kept, and renders it quite unfit for exportation; the acrid and poisonous weeds fostered on such soil makes the butter little better than poison to most constitutions, and the highly acrid quality of

the milk, produces in children a scrofulous habit of body, subjects them to attacks of influenza, and causes the various glands in every part of their body to become diseased; and when the disorder is suspended for a time, they beget children like themselves until the scrofula affects their lungs and they run off with purulent discharges. Such butter, cream and milk, is affecting great numbers of the women who had good constitutions with fluor albus or whites, which will bring them to a premature end, if the use of such butter, cream, and the fat of butchers meat is not given up; such Englishmen is the doom of your unfortunate families, except those who live on the mountainous districts and downs where the people enjoy good health, but even there where mercury is given to such patients, it diseases every organ of the body, and is sure to affect the bones when the system is in an acid or acrid state, which is the case with all scrofulous people. The evil is rapidly spreading over Europe where such policy is pursued.

When travelling to Ostend from Brussels, I saw a number of farmers pursuing that destructive policy of top-dressing their fields with street, and also with recent manure, from the stable-yards undergoing corruption, it will soon destroy the character of their butter and their own health, as also that of the inhabitants that use it. At Mr. How's who kept the Royal Hotel at Margate, they were in the habit of using Belgian butter for making all their pastry and biscuits, Mrs. How observed she would not give one pound of Belgian butter for two or three pounds of English; when she used the Belgian it would not fall down or become heavy when made into cakes or pie-crust, when heated in the oven they would be light and well flavored as ever, and would keep good for a length of time, and when baked into biscuits they would keep light, sweet and good for months; but made of English butter they would become rancid, heavy, and spoil in a day or two, and disagree with the people's stomachs. If the farmers about Ostend do not change their policy, their butter will soon lose its character, I found it ten years ago much superior to what it is now. I must now take my leave of Belgium for the present but would much like to see that interesting country again, when I could devote

more time and attention to the state of agriculture and the public good.

From a careful review of the foregoing facts, I think we may be justified in coming to the following deductions:—

First. That it is a general law of nature that vegetable and animal substances undergoing putrefaction, particularly poisonous ones, corrupt the soil and render bland substances unhealthy, and prodigiously increases insectal life, especially poisonous ones.

Second. When the elementary prescriptions that enter into the composition of the soil are in their proper proportions, it is in a fine state for reproduction, but when any of the elements are in excess the soil will become diseased; the great object of man therefore in order to enjoy health of body and peace of mind, is to correct any excess of any of the elementary principles that may be in the soil.

Third. It is a general law from which animals and the human family is not exempted, that death in most instances is caused by the agency of parasitical insects and animalculæ, which entering into and preying upon, the bodies of animals and vegetables, corrupt their vital juices and in a longer or shorter period produce death.

Fourth. That the presence of such parasitical animalculæ has been proved in many diseases of the human body, such as of the skin, plague, itch, leprosy, measles, hooping cough, small pox, guinea worm, consumption, ophthalmia, dysentery, ulcers, and a long catalogue of others, which if not prevented by rest and regenerating the soil, will increase the misery and cut short the lives of the greatest portion of the human race. The existence of such evils has been proved by Moses, Leenwenhoek, Linnæus, Sir Joseph Banks, Sir Edward Wilmot, Sir George Baker, Doctors Adams, Rolandson, Bartholomew, Mead, Haberdén, Mouffet, Neale, and many other naturalists, philosophers and physicians.

Fifth. That living parasitical insects and animals have been found in almost every part of the human body, as in the skin, brain, lungs, stomach, liver, intestines, kidneys, bladder, interstices, of the muscles, &c. as appears from the researches of anatomists and naturalists.

Sixth. That substances called vermifuge are the most

speedily destructive of insectal and animalculæ life, and have been found to be the most efficient remedies in the cure of a great variety of human diseases.

Seventh. Most constitutional maladies are produced from acid, acrid, corrosive, and narcotic plants, causing critical fevers and plagues, or acute inflammatory disorders, such plants are greatly encouraged by sour, acid and putrid soil or such substances applied to the soil.

Eighth. The best method of preventing disease is in the application of salts and alkalies to the soil, to destroy the insects, and equalize the acid and putrid quality of the soil, and when laid on in proper quantities, tends to fertilize and sweeten the produce of the earth.

Ninth. That when the soil has been long cropped the crystals or particles become decomposed by the roots of the crops, and the salts and alkalies becoming completely absorbed from the earth, it will become sterile, and require the application of salt to recrystallize the particles of the soil, in order to make it productive. Linnæus observes in page 10 "and no one will venture to suppose that crystals can exist without salts, or deny that the earth is crystallized by salts." A good practical lesson to our farmers who never think of employing it.

Tenth. That all prohibited animals mentioned in scripture, are particularly subject to be infected with poisonous insects which is communicated to the human species, particularly carnivorous animals and fowls, and those domestic animals that are covered with fur or feathers, their houses ought to be kept clean, sprinkled with salt, and washed with lime, particularly the pig pens; and plenty of salt and lime mingled with their food to prevent their being attacked with the insects, and to render their flesh sweet and nutritious.

Eleventh. That in all countries where agriculture is neglected, when the seasons are attended with great heat and calm weather, and a non electrical state of the atmosphere, energetically develop insectal and animalculæ life, and contribute to the evolutions of insects and exhalations, which then arise from all marshy places and pools of stagnant water, and pestilential diseases will naturally follow.

Twelfth. That violent electrical convulsions and thunder storms instantly destroy insectal and animalculæ life, and consume the excess of sulphuretted hydrogen in the air, and puts a stop to all pestilential diseases.

When in Charlestown, South Carolina, during the epidemic, the heat was excessive, so that all vegetables, animals, and people were suffering, and the air was so surcharged with sulphuretted hydrogen that putrefactive fermentation was going on in the swamps. Dr. Shecut had one of the most powerful electrical apparatus with three large plates, and could not elicit a spark stronger than to produce hardly any sensation, the amalgum on the cushions became perfectly black and smelt most powerfully of sulphuretted hydrogen, but when the thunder storm came the lightning burnt up the hydrogen, health was immediately restored and all the animalculæ destroyed, when all nature seemed to rejoice.

Thirteenth. That a non-electrical, or negatively electrified state of the atmosphere seems to be a most powerful pre-disposing cause, at least in the human body, to prepare it to take on diseased action; and that, on the contrary, a highly electrified state of the atmosphere is the most salubrious and conducive to human longevity.

Fourteenth. That blights amongst corn and vegetables are caused by myriads of small insects and animalculæ.

Fifteenth. That the feeding upon the flesh of diseased animals and blighted vegetable substances, has been ever found adequate to produce mortality, as instanced in dry gangrene and convulsive and gangrenous ergotism, which have finally become epidemic.

Sixteenth. That the universal experience of mankind in all ages bears testimony to the prevalence of these facts:—That they are confirmed by the writings of all historians, sacred and profane—and that the inspired writers more especially confirm the truths here inculcated.

Seventeenth. That insects are always styled in the sacred writings the armies of the Most High God, and the destined ministers to fulfil his will: and that nothing is wanting to make these truths universally acknowledged, but more accurate observations of what is now daily passing upon the surface of this our globe.

Lastly. I would offer a few words of advice to the government of Britain, and to landholders. For some years past the increase of inhabitants in the manufacturing towns has been immense, and from the over production of their goods, the number of shops is daily increasing, so that nine tenths of the shopkeepers for the past three years have been intrenching on their capital, which with taxes and poor's rates, is becoming every day the ruin of many. Much of this misery might be done away with, by passing a law to compel the landholders to take at least one million of the youth from the manufacturing districts, and employ them on the soil; teaching the boys the theory and practice of agriculture in all its branches, with the different trades necessary to horticulture and agriculture. The girls should understand the dairy and all manner of house work. All the able bodied poor over the three kingdoms would be found requisite to bring the land into a proper state of cultivation, which has now been so long cropped that it is in a diseased state, and all its productions unhealthy. The soil is in a highly oxidized state, which favours the growth of insects, and makes the herbage particularly unwholesome. The absence of electricity is one great cause of the increase of insects, and if there were a sufficient quantity of salts and alkalies contained in the soil such insects could not exist. Since 1827, up to the present time, the electrical fluid has been much wanting, hence we have been scourged with influenza, cholera morbus, and other malignant diseases. Nothing can restore the kingdom to a healthy state but the proper cultivation and regeneration of the soil.

No nation possesses more materials for rectifying the soil than Britain. Its immense masses of lime, marl, peat, swamp earth, and salt rocks, and being surrounded by the sea, give it advantages, which, if made use of, would enable her to maintain five times the number of inhabitants. We should require granaries all over the kingdom to lay up grain in the seasons of plenty, sufficient to maintain the inhabitants for a year; a large quantity of the old corn should be sold every year, and an equal quantity of new laid in, and when there is a surplus, it might be sold to the merchants for exportation, in the form of seed grain, and garden seeds, flour, pearl

barley, oatmeal, porter and ale; likewise butter and cheese, when the land is in a fit state to produce them. We ought to export from ten to fourteen millions yearly from the products of the soil. The great object of all this would be the increase of a healthy people, who would prove virtuous, and useful settlers in the various colonies. Unless some such scheme is adopted, the nation will be reduced to much misery and distress.

I have thus brought to the notice of the public the great prosperity enjoyed by the Jews and Romans during their wars and conquests, and the British Empire, might by following their agricultural policy and cultivating peace, be raised to the same height of prosperity. When the Jews were under the theocracy; and the Romans in the zenith of their power, the people were in such high health, on account of using so much old corn, that they had no occasion for doctors; such might be the state of Britain, if she would follow their example.

I have laboured hard for the past ten years to convince the agriculturists of the bad policy they are pursuing, and I am happy to say with some success, particularly in the county of East Lothian, where the seeds of improvement were first sown by my eminent instructors, and faithfully followed up by myself; and the farmers are reaping a golden harvest. Although the view I took of the subject met with opposition at the first, the profits arising from trenching and manuring the land as before stated soon became obvious and induced it to be generally adopted; and they are now following the six years routine cropping. Great benefit has been derived from tile draining, which is carried on most extensively, and increases the quantity and quality of the hay and grain, and improves the health of the stock. When a sound policy pervades the country generally, the climate will become more congenial to the health and consequent happiness of the people. During thirty-five years I have had much experience and actual observation of the bad effects produced on mankind by bad food and drink, and it is my earnest hope, that my advice may be followed extensively, having no doubt but that it will greatly tend to the amelioration and improvement of the human family.

Twenty years experience has convinced me of the bene-

ficial results arising from the use of my Medicated Vapour Bath, and during that time I have been enabled to make essential improvement on it, and for the protection of the public I took out a patent to keep it out of the hands of the ignorant. In order that the benefits to be derived from the Bath, may be more generally known and appreciated, I subjoin the following extracts from Dr. Andrew Coombe's work, on the "Principles of Physiology applied to the preservation of health." Dr. Coombe is one of the brightest ornaments of the age, and is struggling hard to throw off the absurdities of his scholastic education.

Dr. Coombe observes, "But it is a general law, that whenever an organ is unusually delicate, it will be more easily affected by any cause of disease than those which are sound: so that, if the nervous system, for example, be weaker than other parts, a chill will be more likely to disturb its health than that of the lungs, which are supposed, in this instance, to be constitutionally stronger; or, if the muscular and fibrous organizations be unusually susceptible of disturbance, either from previous illness or from natural predisposition, *they* will be the first to suffer, and rheumatism will ensue; and so on." P. 58.

"When the perspiration is brought to the surface of the skin, and confined there either by injudicious clothing or by want of cleanliness, there is much reason to suppose that its residual parts are again absorbed, and act on the system as a poison of greater or less power, according to its quantity and degree of concentration, thereby producing fever, inflammation, and even death itself; for it is established by observation, that concentrated animal effluvia form a very energetic poison. The fatal consequences which have repeatedly followed the use of a close water-proof dress by sportsmen and others, and the heat and uneasy restlessness which speedily ensue where proper ventilation is thus prevented, seem explicable on some such principle." P. 70.

"It appears from the London Bills of Mortality, that between a fourth and a fifth of all the infants baptized die within the first two years of their existence. This extraordinary result is not a part of the Creator's designs; it does not occur in the lower animals, and must have causes capable of removal." P. 81.

“ Many youths, particularly females, and those whose occupations are sedentary, pass days, weeks, and months, without ever experiencing the pleasing glow and warmth of a healthy skin, and are habitually complaining of chillness of the surface, cold feet, and other symptoms of deficient cutaneous circulation. Their suffering, unfortunately, does not stop here, for the unequal distribution of the blood oppresses the internal organs, and too often, by insensible degrees, lays the foundation of tubercles in the lungs, and other maladies which shew themselves only when arrived at an incurable stage. Young persons of a consumptive habit will generally be found to complain of this increased sensibility to cold, even before they become subject to those slight catarrhal attacks which are so often the immediate precursors or rather the first stages of pulmonary consumption. All who value health, and have common sense and resolution, will therefore take warning from signs like these, and never rest till equilibrium of action be restored.” P. 86.

“ When the saline and animal elements left by the perspiration are not duly removed by washing or bathing, they at last obstruct the pores and irritate the skin. And it is apparently for this reason that, in the eastern and warmer countries, where perspiration is very copious, ablution and bathing have assumed the rank and importance of religious observances.” P. 94.

“ On the Continent, the vapour bath is had recourse to, both as a means of health and in the cure of disease, to a vastly greater extent than they are in this country. Their use is attended by the very best effects, particularly in chronic ailments, and where the water-bath is felt to be oppressive by its weight; and there can be no question that their action is chiefly on the skin, and through its medium on the nervous system. As a means of determining the blood to the surface, promoting cutaneous exhalation, and equalizing the circulation, they are second to no remedy now in use; and consequently, in a variety of affections which the encouragement of these processes is calculated to relieve, they may be employed with every prospect of advantage. The prevalent fear of catching cold, which deters many from using the vapour bath, even more than from warm bathing, is founded on a

false analogy between its effects and those of profuse perspiration from exercise or illness. The latter weakens the body and, by diminishing the power of reaction, renders it susceptible of injury from sudden changes of temperature. But the effect of the vapour bath properly administered is very different. When not too warm or too long continued, it increases instead of exhausting the strength, and, by exciting the vital action of the skin, gives rise to a power of reaction which enables it to resist cold better than before. This I have heard many patients remark; and the fact is well exemplified in Russia and the north of Europe, where, in the depth of winter, it is not uncommon for the natives to rush out of a vapour bath and roll themselves in the snow, and be refreshed by doing so; whereas, were they to attempt such a practice after severe perspiration from exercise, they would inevitably suffer. It is the previous stimulus given to the skin by the vapour bath which is the real safeguard against the coldness of the snow.

“Common experience affords another illustration of the same principle. If, in a cold winter day, we chance to sit for some time in a room imperfectly warmed, and feel in consequence a sensation of chillness over the body, we are much more likely to catch cold on going out, than if we had been sitting in a room comfortably warm. In the latter case, the cutaneous circulation and nervous action go on vigorously; heat is freely generated, and the vital action of the skin is in its full force. The change to a lower temperature, if accompanied with exercise to keep up vitality, is then felt to be bracing and stimulating rather than disagreeable. But it is widely different when the surface is already chilled before going out. The vitality of the skin being diminished, reaction cannot follow additional exposure; the circulation leaves the surface and becomes still more internal; and if weakness exist in the throat or chest, cold is the almost certain result. Many suffer from ignorance of this principle.

“The vapour bath is thus calculated to be extensively useful, both as a preservative and as a remedial agent. Many a cold and many a rheumatic attack arising from checked perspiration or long exposure to the weather, might be nipped in the bud by its timely use. In chronic affections,

not only of the skin itself, but of the internal organs with which the skin most closely sympathizes, as the stomach and intestines, the judicious application of the vapour bath is productive of great relief. Even in chronic pulmonary complaints, it is, according to the continental physicians, not only safe, but very serviceable; particularly in those affections of the mucous membrane which resemble consumption in so many of their symptoms. Like all powerful remedies, however, the vapour bath must be administered with proper regard to the condition and circumstances of the individual; and care must be taken to have the feet sufficiently warm during its use. If, from an irregular distribution of the steam, the feet be left cold, headache and flushing are almost sure to follow.

“ Although the preceding remarks apply specially to the skin considered as an *exhalant*, yet most of them are equally applicable to it when viewed as the seat of an important *nervous* function. For so intimately and beautifully are all the parts of the frame connected with each other, that what is really good for one, rarely if ever fails to be beneficial to the rest. Thus while exercise, adequate clothing, the bath, friction, and cleanliness, are very efficacious in promoting the insensible perspiration and equalizing the circulation, they are almost equally influential in promoting the vital action of the innumerable nervous filaments ramified on the skin, and the tone of which is as essential as that of the bloodvessels to the proper discharge of the cutaneous functions. In the large and afflicting class of Nervous and Mental diseases, attention to the skin becomes therefore almost a *sine qua non* of successful treatment. As a preservative, too, it is influential. In most nervous ailments, languor and inaction of the skin shew themselves simultaneously with the earliest dawn of mental uneasiness, and often attract notice before the morbid feelings of the mind have acquired either permanence or strength. At this early period, the use of the bath will frequently prove very efficacious in restoring health.” P. p. 101, 102, 103.

“ The writer of these remarks has, unfortunately for himself, had extensive experience, in his own person, of the connexion between the state of the skin and the health of the

lungs; and can, therefore, speak with some confidence as to the accuracy of his observations, and the benefit to be derived from attending to the condition of the skin in chronic pulmonary complaints. Many affections of a consumptive character are preceded or begin by deficiency of vital action in the skin and extremities, and a consequent feeling of coldness in the feet and on the surface, and susceptibility of catarrhal affections from apparently inadequate causes, often long before any pressing symptom, directly connected with the lungs, occurs to attract notice. In this state, means systematically directed to restoring the cutaneous circulation will frequently be successful in warding off consumption; and, even when the disease is formed, the same means will help to prolong life, and relieve suffering, while they will go far to effect a cure in those chronic affections of the bronchial membrane, which stimulate consumption and are sometimes undistinguishable from it, and which, when mismanaged, are equally fatal." P. 106.

"These results seem to corroborate the doctrine of M. Donne, that in the healthy state an acid humour is secreted from the whole surface of the skin, while the mucus secreted from the digestive canal is everywhere, except in the stomach, of an alkaline nature. I have often noticed that acidity in the stomach was much relieved by free action of the skin, particularly in gouty habits, after the use of the warm bath. On the other hand, the season of the year at which I have always heard most complaints of acidity was towards the end of autumn, when the colder weather was beginning to diminish perspiration and change the balance of the circulation." P. p. 111, 112.

These judicious remarks of Dr. Coombe on the various bodily affections caused by the inactivity of the skin, cannot be too highly appreciated. After carefully observing for many years the effects produced by the Vapour Bath, and from the united testimony of medical men, particularly in America, who have watched over its specific action. I am decidedly of opinion that all persons before taking the Bath, should have their liver and bowels cleansed by some vegetable purgative, as whatever morbid matter contained in the liver, stomach, or bowels is drawn into the system. Going

into the bath when hungary should be avoided ; a luncheon taken an hour or two before will prevent a sense of faintness in delicate constitutions.

The whole of the doctors, both in England and America, with but few exceptions, denied the possibility of inhaling medicine by the lungs. Notwithstanding the numerous cures I affected by the Bath, they burlesqued and ridiculed my invention. Their ignorance of the whole subject is now completely exposed by F. Majendie, Professor of Physiology and Medicine in the College of Paris, and one of the first experimentors of the age. In order to bring the subject more fully before the public, and believing it to be of the utmost importance to the human race, I will quote some of the most striking parts of the professor's lectures.

“ It is a consequence which you must have already derived from the experiments you have seen, and the observations which I had the pleasure of laying before you, that all animal tissues, without exception, possess a peculiar property inherent in them, which we have called imbibition or absorption. This is the only certain result which we can draw from the principles established, and I hope to shew you that it is of immense importance in explaining many phenomena connected with the human frame which have hitherto been neglected by physiologists, or referred to certain fantastical and gratuitous properties, which reason and experience can never admit.

“ Some time ago absorption was considered as a very complicated function. At that period, the science was made up of hypotheses, and it was imagined and taught, in private and in public, that the living tissues, and particularly the membranes, the parietes of the vascular system, &c. were incapable of imbibing different substances, from the mere circumstance of their being endowed with life ; that, in short, they rather resisted the tendency to imbibition. Hence a vital phenomenon was created to explain absorption ; it was said that all the tissues were furnished with a multitude of peculiar vessels, opening on the different surfaces, with little mouths, like the extremity of the intestinal canal, or the pylorus. These absorbent mouths, were endowed with a special tact, or sensibility, of a new and exquisite nature ;

they were said to open and shut at pleasure, and to take up or refuse the substances offered to them: but this was not sufficient; physiologists went even so far as to endow them with a species of natural intelligence, whereby they were said to distinguish what was advantageous for the economy at large from what was injurious. Thus a metaphorical expression borrowed from the life of animals, became the foundation of a wide spread theory, which originated more than half a century ago, and still exists with nearly equal credit.

“ It is unnecessary to say how universally this opinion of the existence of absorbent mouths, possessed of a peculiar sensibility, prevails in modern works; but from what you have seen, you must now be prepared to admit this theory as a romance, invented to cover our ignorance, and transmitted, without examination, from mouth to mouth, not as the expression of a fact established by experience. On the contrary, I have shewn you that absorption consists in the simple imbibition of substances placed in contact with the living tissues, and that there is no exercise of any choice in the reception of one fluid, or of repugnance to admit another, because the corrosive quality of liquids or solids submitted to absorption, does not oppose an obstacle to their introduction into the system; and it would even appear that these latter are taken up more readily than substances which do not exercise a destructive influence on the tissues.

“ There is, indeed, a great difference in the rapidity with which substances are absorbed by the different membranes. Imbibition is more rapid in the serous membranes than in the mucous,—where the tissue abounds in vessels than where it is less vascular, &c.; but the phenomenon is observed in all parts of the body. *You saw that solids were taken up, no matter where we applied them; medicinal substances were placed in contact with the eye, mouth, surface of the skin, the membranes lining the internal cavities, such as the lungs, stomach, intestinal canal, &c., the arterial and venous tissues, &c.; they were all transported into the economy, and the fact of their introduction was proved by the different effects which resulted, according to the nature of the substance.*

“ But we are possessed of means to hasten the progress of

absorption; we can impede the introduction of a medicinal substance at pleasure, or we can arrest imbibition altogether. This phenomenon is of the highest importance in a therapeutical point of view, and may be applied with the utmost advantage to certain cases in which the life of the individual is gravely compromised, as in the case of a bite of a rabid or poisonous animal, or where we desire to arrest the imbibition of a morbid matter into the blood.

“ The pulmonary surface, at least that part of it to which I now propose to direct your attention, is chiefly distinguished from the other two great surfaces of the human body, by the absence of a mucous membrane. You know that the lining membrane of the trachea descends into the bronchi, and is recognizable on the inner surfaces of all the tubes which serve to conduct air into the body of the lung itself; but the ultimate divisions of the bronchi terminate suddenly, and do not penetrate into the spongy tissue of the organ; hence it is more than probable that the surface with which the atmospheric air is placed in contact is deprived of a mucous lining, and the most minute researches of the anatomist are unable to demonstrate its existence in this part.

“ If you examine the intimate structure of the human lung, you will find it composed of the subdivisions, infinitely repeated, of the pulmonary vascular system, enveloped and connected together by a fine layer of cellular tissue. I have said, that the anastomosis and intercrossing of the pulmonary vessels are infinite. It is this arrangement of small tubes, connected together by a parenchymatous tissue, which constitutes the pulmonary celluosities, or areolæ. In the human body they are so fine and delicate, as to require the aid of a strong glass to distinguish them, but the disposition which I have just described to you, is seen in the most evident manner in the lungs of certain cold-blooded animals, particularly in the reptile tribe.

“ It is unnecessary for me at the present moment to enter into any extensive anatomical details on the structure of the human lung, I shall have occasion to speak of that organ more fully in a future part of the course; it is sufficient for our immediate object that you be acquainted with the great extent of surface presented by the *ensemble* of the pulmonary

areolæ. The lungs, or to speak more exactly, the surface of the pulmonary cells, offers, therefore, a medium through which medicinal substances may be introduced into the economy to a great extent, and with astonishing rapidity. The external agents, indeed, which most ordinarily act upon the lung, are gases of different kinds, particularly atmospheric air; but for the present, we shall lay this part of the subject aside, and only consider what happens when a solid is placed in immediate contact with the pulmonary tissue.

“ In order to understand more clearly the phenomena of imbibition in this part of the body, let me direct your attention to two peculiarities of structure in the lung; the membrane which composes the air-cells is extremely fine and delicate, and therefore gives a ready passage to subjects offered to it; on the other hand, there is a free communication between all the branches of the pulmonary vascular system, whether arterial or venous, and the passage of blood from the minute radicles to the heart is very rapid.

“ These are the physical conditions which the lung presents as an imbibing organ, viz., a delicate membrane to be traversed, and a rapid circulation from the capillaries to the central organ. Hence you may draw the conclusion, which experience confirms, that when a substance is placed in contact with the pulmonary surface, it is imbibed with a great degree of rapidity. Indeed, nothing can be more surprising than the energetic and almost instantaneous manner in which certain substances, when introduced into the lungs, act upon the economy at large, producing a variety of effects, more or less injurious, and in many cases sudden death. You are to understand, however, that these latter remarks apply only to poisonous, or other noxious substances, which equally affect the system, no matter with what part of the body they may be placed in contact; because if the substance applied to the pulmonary membrane be of an innocent nature, it gives rise to no more inconvenience than if it had been taken into the stomach. Of this fact we have a striking example furnished in the annals of surgery: it is rather ancient in date, but not the less valuable, or applicable to the illustration of the question before us.

“ You know that in many cases of wounds dividing exten-

sively the anterior region of the neck, the trachea and œsophagus may be cut through, without the life of the patient being necessarily compromised. Now in accidents of this severe nature, it is often indispensably required to pass a tube through the œsophagus into the stomach, and feed the patient for a certain time in that manner in order to give the divided parietes of the canals an opportunity of reuniting, without the process being disturbed by muscular contraction, the passages of aliments, &c., or other causes of irritation. Dessault had to treat a case of the kind just mentioned ; but, either through inadvertance, or negligence, he introduced the gum-elastic tube into the trachea, down to the subdivision of the bronchi, instead of passing it through the œsophagus to the stomach. In this state of things, several injections of soup were thrown into the lungs before the mistake was discovered and rectified ; but we are not told that any fatal, or even dangerous consequences ensued. Hence we may conclude, that if any accidents were really produced by the introduction of the soup into the pulmonary cells, they were of a comparatively slight nature ; and this conclusion has been confirmed by experiments repeated since the time of Dessault.

“ Various substances of an innocent nature have been thrown into the lungs, without deranging the economy ; they occasion some slight difficulty and trouble of respiration, excite coughing, &c., nothing more. After a very short time they are imbibed by the membrane, removed with the circulating mass, and all the unpleasant symptoms which they may have occasioned disappear.

“ The knowledge, first acquired by hazard, that substances may be thrown into the lungs in some quantity without danger, has led physicians to propose the injection of medicinal fluids into the interior of the organ in cases of pulmonary phthisis. You are all familiar with the experiments which have been made with the vapour of prussic acid, narcotic substances, and iodine ; perhaps the same remedies might be injected with advantage. If however, you are disposed to make trial of this mode of treatment, remember that when an active substance is placed in contact with the pulmonary membrane, its dose must be considerably

diminished. You cannot, in short, administer the ordinary quantity of any powerful medicine through the medium of the lungs, without incurring the danger of giving rise to grave accidents. You must, therefore, proceed with caution, and commence with a fraction of the dose, which experience proportionates to the stomach.

“ It is of importance to establish this fact, and impress it on your memories, as a very slight error in quantity may occasion the death of the patient ; let us, therefore, have recourse to an experiment :—We will inject a quantity of poisonous fluid into the lungs of a dog, and shew you the rapidity with which the poison is taken up and carried into the economy. You may safely calculate from what you will see in the dog, the effects of the substance on the human body ; because there is no difference of any importance in the action of poisons, in man or dogs, &c. or any other of the higher animals.

“ This is a proposition to which there are very few exceptions, and they are chiefly to be found as we descend in the scale of creation ; for warm-blooded animals I know of no difference worth taking into account, unless, perhaps, it be that man, from the extreme sensibility of his nervous system, is affected by a smaller dose. I have dissolved a scruple of the extract of *nux vomica* in a small quantity of fluid, and now proceed to inject it by means of a syringe into an opening, which we have practised here, in the anterior surface of the trachea of this little dog. The whole of the fluid has now been thrown in, and, if I am not deceived, you will almost instantaneously witness its poisonous effects on the animal. Ah ! the medicine begins to operate ; ten seconds have elapsed since its administration, and you now witness its rapid and energetic action : the dog has fallen suddenly down, deprived of all muscular power : you observe a few convulsive motions of the mouth, a few violent inspirations, and he is now dead.

“ Here the action of the medicinal substance has been instantaneous, and you are able, from what I have said of the vascularity of the lung, to understand why. The experiment also proves to you, that the dose of any powerful agent must be carefully modified and diminished, when it is introduced through the medium of the pulmonary surface. You may also remark the striking difference of sensibility

exhibited by the membrane lining the air passages at different parts of its trajet. Above, near the entrance of the glottis, in the larynx and superior portion of the trachea, nothing can be more sensible than this membrane. You have all witnessed the violent and spasmodic cough produced when a drop of water 'goes astray,' as it is said, and lodges about the glottis; but as we descend, this delicacy of sensation diminishes and finally disappears, so that at the lower part of the trachea you may introduce any quantity of fluid without fear of injuring the sensibility of the organ; this is a fact in medical physiology which is of some importance, and may be applied with practical advantage to several circumstances of disease. The effects which you have just witnessed take place when the substance applied to the pulmonary surface is in the form of a liquid; but if it be solid, you either have no action produced, or it is expelled by expectoration as a foreign body; and this latter most ordinarily occurs. Thus cartilaginous bodies, tubercles, portions of ossified bronchial glands, &c., when they become detached and lie loose in the smaller bronchi, excite a degree of irritation and cough, by which they are forced into the larger tubes, and ultimately discharged with the matter expectorated; when, however, the solid body is of such a nature as to be readily dissolved by the secretions or the air-cells, it enters into the conditions of a fluid, and is imbibed with more or less rapidity, according to its degree of solubility.

"In the lungs we have a great mass of vessels ramifying minutely on a very extended surface; the membrane which composes the last ramifications of the bronchial tubes is so fine and delicate that substances introduced into the interior of the respiratory system, may almost be said to be in contact with the vessels themselves; the circulation of blood from the lungs to the heart is rapid; the road which the fluid traverses from the ramifications of the pulmonary artery to the centre of the circulation, is as you all know, extremely short; the lungs are also situated near the centre of the nervous system, and are intimately united to it by the eighth pair of nerves. From these different circumstances it follows, that substances placed in contact with the pulmonary surface are quickly transported into the general mass

of the circulation, and the various phenomena thence resulting are produced with inconceivable rapidity. For example, if the solution of a poisonous or other deleterious substance be injected through the tracheal artery into the interior of the lungs, no sooner is the fluid introduced than imbibition takes place, and the action of the substance is instantaneous. I make use of the latter strong expression, because the lapse of time is, in fact, barely appreciable. There may be, perhaps, some difference in the quickness with which different poisonous substances act through the medium of the lungs; and, perhaps, if we used proper instruments, we might with attention discover those different relations, but this is altogether of minor importance; the main fact, that which I would wish to impress upon your minds, is the imbibition of substances by the pulmonary surface, and their rapid action on the nervous system. Thus you see that this part of the body presents physical conditions most favourable to the local imbibition of substances, and their transport into the general circulation, which constitutes absorption.

“ Let us now examine the physical conditions presented by the intestinal canal, so far as regards the subject upon which we are occupied. If we compare the surface of the intestinal tube with that formed by the assemblage of the bronchial cells, we find that the former affords a much less extended surface for imbibition. In addition to this, the greater part of the intestinal canal is less vascular, furnished with a smaller number of capillary vessels, than the lungs. The œsophagus, for example, is clothed with a membrane very analogous to the epidermis of the skin: its surface is pale, little vascular, and by no means calculated to take up the substances presented to it; the rest of the intestinal canal is also less vascular than the pulmonary surface; and its vascular branches are further removed from the centre of the circulating system. Hence an appreciable interval elapses between the introduction of any substance into the digestive canal, and its action upon the system in general, and but a little of the substance is absorbed at the same time. You have familiar illustration of this fact every day before you; place any active poisonous substance, or an emetic, for instance, in the stomach; some considerable time, a quarter

of an hour or half an hour, will elapse before the agent is introduced into the economy and its effects are made manifest. This difference of action is easily explained by the physical conditions of this part, its little vascularity when compared with the lungs, and greater distance from the heart. Besides, the stomach in a state of health is habitually lined by a mucous matter, which is closely adherent to its surface, and any surface introduced into the organ must penetrate that viscid layer before it can come in contact with the naked mucous membrane beneath. In cases where the matter is very abundantly laid down, and forms a thick lining over the surface of the stomach, you can readily conceive how imbibition is mechanically opposed, or the mere introduction of the substance may be sufficient to excite a fresh secretion of this matter, and thus creates a new physical disposition, which opposes its contact with the imbibing surface, and of consequence retards, more or less, the action of the remedy upon the system at large.

“ We have numerous proofs of the permeability of dead tissues to vapour, which it is unnecessary to repeat; let us rather examine if the same phenomenon be exhibited in the living body. For this purpose we will force an animal to respire the strong prussic acid of Gay Lussac, which is prepared by concentrating the fluid by means of cold; and here let me remark, that you should be very cautious whenever you experiment with this acid. It is a most powerful poison, and requires much management in its use; indeed more than one physician has been poisoned for want of proper precaution. In order to preserve it when once made, you stop the bottle well, remove it from the action of light, and place it in an ice-cold temperature.

“ I shall now pass the nose of this rabbit slowly over the bottle, and if his respiration happen to correspond with the moment of passage, you will have the effects of the poison rapidly developed. (*This was done without any effect.*) The acid is, perhaps, as yet too cold, and the vapour does not, consequently, rise in sufficient quantity; but we do not want rapidity of effect. (*The animal was passed a second time over the bottle, and instantaneously killed.*) This experiment shows that the vapour has passed through the

membrane of the lungs, and the effect of the poison has been produced as rapidly in the present instance as if it had been applied in the form of liquid to the animal's tongue or stomach.

"In this other bottle we have some of the vapour of chlorine, a substance which possesses the property of arresting the poisonous effects of prussic acid, unless the latter has been administered in a dose sufficiently strong to kill the animal on the spot. We shall now try the efficacy of the antidote. This is a much larger and stronger rabbit than the one last experimented on. I pass his nose once over the odour of prussic acid; the characteristic effects are now produced; the animal's respiration has become excessively rapid, and the muscular power has been annihilated. As he is not quite dead, we will try chlorine. (*The animal's mouth was held for some seconds over a bottle containing the vapour of chlorine, but without effect.*) In the present instance, the poison has acted so rapidly, that the chlorine has not had time to develop its effects; it has been applied too late.

"Here is a physical phenomenon, in itself very simple, but of the greatest importance to the physiologist and the physician. *Vapours* are frequently employed as a remedy in the practice of medicine; thus, in later times, iodine and chlorine have been much vaunted in cases of certain pulmonary affections. The vapours of several substances act as energetic poisons. I need not dwell on this point, for we have, unfortunately, examples every day before our eyes. The vapour produced by burning charcoal is constantly employed as a means of suicide, and you know how frequently workmen are destroyed by the deleterious vapours which collect in confined places, such as wells, &c. It is therefore, I repeat, a matter of importance to know that the membranous tissues of the human body are permeable to vapours, which are introduced into the economy, and there produce either good or bad effects, according to their respective natures."

In confirmation of these remarks, on the power and influence of vapour, I may observe, that the vapour bath carries into the circulation, through the medium of the lungs in the act of inspiration, the powers of plants, which

are held in suspension by the dry or humid steam, which reanimates the whole frame. The bland oils relieve and lubricate the vital organs, so parched in cases of fever—takes off the spasmodic action, softens the whole vital functions, rendering them fit to perform the office of digestion, so necessary to preserve the body in health. The aromatic properties of the plants warms, comforts, and invigorates the nerves: the glutinous qualities lubricates the mucous membrane of the lungs, defends them from the too powerful action of the air on the inflamed surface: the volatile and resinous properties, acting on the urinary organs, carry off the noxious properties from the system, the alkaline qualities neutralize the putrid, acrid and acid matter and gases, which was the principal exciting cause of the disorder: the bland gums, starch, and other properties of the plants, combining with the watery particles of the steam, force their way through the circulating vessels, and carry a portion of the noxious matter and gases off through the pores of the skin; when a sufficient quantity of the above-mentioned drinks are taken into the stomach, the bath excites the exhausted absorbents to a natural action, carrying a sufficient quantity into the system, when the patient will have an inclination to sleep.

Having already in a former work fully explained the nature of my Bath, I shall limit my observations in the present treatise to the great principle of my new discovery, namely, the powers of medication in the cure of disease. The simple vapour of boiling water, is undoubtedly a valuable acquisition to the healing art, and has been time immemorial in use among Oriental nations. But this system of bathing has been used rather as a preventive than a cure for disease: its effects are less violent than the warm bath, and is therefore always to be preferred in a medical point of view. It will undoubtedly arrest the progress of many diseases, and mitigate others; but in a great variety of complaints, such as fever, pulmonary diseases, and diseases of the arterial and nervous systems, the steam of simple water will have little or no effect. The great superiority of my bath, consists in its power of raising and holding in suspension the essential properties of plants. The medicated baths generally advertised,

are nothing more than the simple steam of water, impregnated with a little volatile oil to render the smell agreeable. This I think it right to mention, in order to guard the public, and the profession, against misconception as to what a medicated bath really is. By medication I can act with more certainty on many important organs of the body, than can be done by medicines taken internally; and I am truly astonished, that men having the least pretensions to a knowledge of physiology and pathology, should doubt the effect of medication on the system. Every medical man knows that important effects are produced by vapour from mercury, sulphur, and other minerals; and we know, that a man will become intoxicated merely from inhaling the fumes of brandy. The exhalation from the *rhhus toxocodendron* (a tree of the most poisonous kind), has such a powerful effect on the system, that a person cannot approach within ten yards of it without endangering his life: and whole families have perished in consequence of making use of it as fire-wood. The practice of inhaling the fumes, effluvia, and vapour of different substances, has long been extolled in the cure of many diseases; as the fumes of tar in diseases of the lungs, smoking stramonium, and other narcotics, in asthmatic affections; cinnabar, &c. in ulcerated sore throats; and the vapour of hot vinegar and water, in inflammatory affections of the throat, &c. Such are a few examples of the grand principles of medication. But never to the same extent, or in so effectual a manner could it be employed, as by means of my bath. If medical men deny the utility of medication, what becomes of the doctrine of infection or the means recommended for destroying it? And if the air of a room can be deteriorated to such an extent, as to affect a healthy person subjected to its influence for a short time, and give rise to an identical and fatal disease, why should not a medication have an equally salutary effect, in counteracting the principles of disease already established in the constitution? Do not the fumes of turpentine give rise to a peculiar odour in certain secretions of the body? and does not the smell of paint bring on colica pictorum and paralysis? These are facts with which every medical man must be conversant. It is an easy matter to explain the way in which medication acts

on the system.—The patient inhaling the medicament in a gaseous state, it comes in immediate contact with the blood in its circulation through the lungs, thereby influencing the action of the heart, and in this way, the pulse may be accelerated or decreased, and the nervous system excited or depressed. When air, water, or vinegar is injected into the veins leading to the heart, its action is powerfully increased, and the more so according to the stimulus, from which we can account for salt, or pungent provisions, or stimulating liquors, exciting an undue action in the heart, independent of their first operation on the nerves of the alimentary canal. In this way, medicine taken internally exerts its influence on the system, by stimulating the nerves of the stomach, and exciting the absorbents, by which it is carried into the blood, and is again thrown off by the excretions carrying along with it impurities which produce disease, or obstruct the free actions of important organs. But substances through the medium of the lungs, exert a more powerful, speedy, and certain effect, than those which have to undergo the tedious process of digestion, as is seen in the breathing of the fumes of alcohol, or nitrous oxide, which instantly increase the force of the circulation, whilst those of hydro-carbon, or pure carbonic acid gas, diminish it: hence the value of hydro-carbon, in mania, to suspend the diseased intellectual functions for a time. All these effects are produced by these various agents operating through the medium of the nerves. And when we consider the effects of various smells upon the nervous system, it will be easily understood why the bath should be a most powerful remedial agent in the cure of nervous diseases. The smell of the white lily, or that from the snuff of a candle, has been known to produce immediate fainting, while lavender, rosemary, &c. are powerfully stimulant.

For the last twenty years of my life my attention has been directed to the great principle of giving medicine through the medium of the lungs; believing, that in many and various diseases, it may be applied with greater efficacy,—especially in disorders of the chest, whether membranous or glandular; and the rationale of the principle is self-evident: to a local wound, or inflammation externally, we order an external

application, suited to the nature of the case ; and in what way can this be done internally, except through the medium of the lungs ?

In order to effect this object, I constructed a bath on an improved principle, by which the properties of plants could be held in suspension by compressed steam ; and it is owing to this principle, that the wonderful healing powers of the bath are to be ascribed. I found that by compressing the steam, the gummy and resinous properties of plants were held in suspension, they passed through the small perforations into the tent where the patient was seated. The suitability of the plants for medication (after being selected with great care) was proved by repeated trials made on myself and other strong persons : and the number of patients under my care at that time being very great, I had an opportunity of trying their effects more extensively, and consequently determining their fitness or unfitness as medication. I soon found, that many herbs valuable as medicines were inadmissible as medication, and all narcotic and corrosive plants I wholly laid aside. On this ground alone, I consider the safety of my remedies to be of primary importance ; and by attending to the three following rules, I believe that the bath may be taken with advantage, under every variety of indisposition or disease. *First*, that before taking the bath, the bowels be properly evacuated, if they require it ; for whatever is in the stomach, whether morbid or healthy, by the action of the bath will be drawn into the circulation. *Secondly*, the patient should use no poisonous drugs while taking the bath. And *thirdly*, no improper medication should be employed. The last recommendation should be as much attended to as administering medicine by the stomach ; for when the poisonous properties of plants are taken into the circulation of the blood, they will produce as much harm when inhaled by the lungs as when taken in by the stomach. Notwithstanding, the consequences of taking poisonous medicine by the stomach, when the secretions of that organ are in a morbid state, are more dangerous in a general point of view, for if taken when there be much acridity or acidity present, death has been known to ensue. This circumstance points out the superior advantages of inhaling the

virtue of herbs by the lungs, and carrying it into the circulation, without coming in contact with the food.

A remarkable instance of the perspiration being impregnated with the disease, or what has been received into the stomach, is, that when a person has drank brandy and water half an hour previous to receiving the bath, the napkin with which he is wiped will smell of the spirit; vinegar, garlic, onions, and various other strong smelling vegetables have a similar tendency, shewing, in addition, that their volatile parts pass unassimilated through the system; and proving, to a demonstration, that the doctrine of vitality and assimilation, so long taught in our medical schools, is unfounded. It, moreover, proves the utility of the bath for accelerating the effects of alterative medicine, in bringing the whole body under their influence, in changing the state of the fluids in constitutional diseases, and in increasing the action of the absorbent system.

The specific effect of the patent medicated vapour bath on the animal economy, is

1st.—To equalize the circulation of the blood, and hence to remove coldness of the hands and feet, and to lessen the determination or flow of blood to the head.

2nd.—To promote sweat, and re-establish insensible perspiration, and thereby to relieve symptoms of internal inflammation.

3rd.—To diminish nervous irritability; and in no instance has it failed to cure tic douloureux.

4th.—To promote cutaneous eruptions, and remove diseases of the skin.

5th. To remove the effects of mercury from the system.

6th.—To promote absorption of dropsical effusions.

7th.—To relieve difficulty of breathing, and hence to cure asthma, and other diseases of the chest and lungs.

8th.—To strengthen the stomach, and impart a tone to the digestive organs, and cure dyspepsia with its consequent disorders.

9th.—To promote the healing of scrofulous and chronic ulcers.

10.—To remove gouty and rheumatic pains and swellings from the joints, and cure lumbago, sciatica, &c.

11th.—In quinsy, croup, and hooping-cough: the very nature of these diseases points out the bath as the most powerful and certain remedy.

12th.—In measles no instance of death has taken place when the bath has been employed.

13th.—To prevent and cure discharges of blood from the lungs and other internal organs of the body.

14th.—To cure acute and chronic inflammation, the bath, judiciously medicated, is a certain specific.

15th.—To cure gout, in all its forms, in a shorter period of time than any agent hitherto employed.

16th.—The bath may be regarded as a specific in cholera morbus.

17th.—Intermittents (or agues), typhus and continued fever, the bath has never failed to relieve and cure, without the necessity of blood-letting.

The subjoined observations here quoted, were addressed to to the Subscribers of the Vapour Bath Institution at a Meeting held at the London Tavern.

The remarks I am about to make are and will be of the utmost importance to the human race. It is my intention to point out the causes of the numerous, and hitherto deemed incurable diseases, under which the inhabitants of most part of Europe, and America, and particularly England, are groaning; especially scrofulous, cancerous, cutaneous and glandular diseases. The term *scrofula*, embraces more than half the diseases said to be incurable. In the seventeenth century, scrofula was considered only as a glandular disease, and mercury and antimony were then but seldom administered. But in the unpardonable manner in which they are now used, they have diseased every organ and joint of the body. In order to give a more perfect idea of the inveterate nature of scrofula, I will mention the opinions of the most learned physicians, as embodied in Dr. Mason Good's History and Study of Medicine, from the earliest ages up to the period when the last edition of his work was published; from which it will be seen, that medical writers differ as much about the cause of scrofula, as they do respecting most other diseases, ascribing effects for causes.

“As to the cure,” Dr. Good observes, “the alkalies in all

their various forms, such as burnt sponge, burnt cuttle fish, shells of all kinds, and burnt hartshorn; the carbonate of soda, subcarbonate of ammonia, lime water, muriate of Boryta, muriate of soda, or common sea salt, and sea weed, sea tang, and sea oak; the mineral waters also of every description have in like manner been had recourse to, as Dr. Cullen observes. Mercury and antimony have been tried, in all their various preparations, and the aurea of voltaism, or moderate shocks of electricity. It is very singular that out of the long list of medicines prescribed, the only one that Dr. Cullen found deserving attention, was coltsfoot. The whole of the metallic salts have been tried in all their various preparations. The acids have also been used, but are of little or no avail. Of the specific benefit of narcotics, hemlock, henbane, foxglove, solanum asclepias, and many others I have yet to be persuaded; and they perhaps operate in the same way, in the latter and more malignant stages of the disease, when the secretion becomes virulent, the open ulcers irritable, and a foundation is laid for hectic fever. But I can conscientiously say, with Dr. Cullen, that they have often disappointed me, and have not disposed the scrofulous ulcers to heal. But we must not expect a cure till the morbid impression is set at rest in the constitution, or utterly extirpated from it."

This last observation is true to the letter, as scrofula cannot be cured without appropriate diet. How far I have succeeded in curing it, in all its multifarious forms, the reports of the committee fully demonstrate.

I will now read some extracts from Sir Astley Cooper's lectures, in order to convince the public of the inefficacy of any treatment that has hitherto been tried by medical men for the cure of scrofula; pointing out the utter uselessness, as well as impropriety, of administering that mineral poison—Mercury. The remarks he has made on the progress of the disease, without pointing out the cause, will, I have no doubt, bring conviction to the minds of the unprejudiced as to the correctness of the views I have taken of the cause of scrofula.

Sir Astley observes, in reference to the treatment of gonorrhœa—

“In the first place, gentlemen, let me observe to you, that no greater folly, and indeed cruelty, can be committed, than that of giving mercury to patients, for the cure of it. A man who gives mercury in such cases, really deserves to be flogged out of his profession, because he must be quite ignorant of the principles on which this disease is to be cured. To give mercury to a young and irritable person, who is probably constantly exposed to the vicissitudes of temperature, for a disease which does not require it (thus exposing the health, and even the life of the patient to danger), is, in the present state of our knowledge, perfectly unpardonable. It is lamentable to reflect on the number of lives which must have been destroyed by phthisis and otherwise, in consequence of the imprudent exhibition of mercury for a disease which did not require it, which prevailed among the older surgeons. At the present time, however, a surgeon must be either grossly ignorant, or shamefully negligent of the duty which he owes to the character of his profession, and to the common dictates of humanity, if he persists in giving mercury in this disease.”

Every person who is a well-wisher to his country, will thank Sir Astley Cooper for the candid manner in which he has thus exposed this infamous practice—a practice which is stabbing the country to its vitals. I think, with him, that it is high time for every honest man to speak out. I hope the legislature will put a stop to the use of mercury, and all other mineral poisons. After speaking of a similar disease in females from an early age upwards, Sir Astley goes on to state, that “in the treatment of this disease you must direct the patient to take dilutents; we possess no medicine which has a specific influence over the discharge in females.” In what a dreadful situation are a large portion of the females in Great Britain placed! One would suppose that the door of mercy was closed against them. But thank God! it is still open. My Medicated Vapour Bath, alterative medicine and dietetic treatment, when strictly pursued, has never failed to cure these diseases, in even their worst form, where hectic symptoms have not taken place. I have had numerous cases so bad that the patients had to be supported or carried from the sofa to the bed, but who are now in perfect health, and

have since given birth to children, which they could not have done had they not been completely cured. A number of my female patients are afflicted with that distressing disease, and also a large number of the other sex. It is a melancholy truth, that a large portion of the youth at our seminaries of learning, and in our cities and towns, are destroyed by it. It produces a long catalogue of disorders, which fall with accumulated weight not only on themselves, but on their unfortunate posterity. I beg to inform Sir Astley Cooper and the British public, that scrofula is at the bottom of the whole of the mischief. I have had the most positive proof, that people entirely free from all scrofulous taint cannot be affected with the disorder.

I will now proceed to state some other extracts from Sir A. Cooper's lectures on scrofula ; but my comments on which will be brief.

“ Many children, born in the East and West Indies, are sent to this country to be educated, and therefore we have an opportunity of seeing the effect of climate on their constitutions ; and I can assure you, that it frequently requires the greatest possible care to save them from the danger of scrofulous disease of the joints and absorbent glands ; and very often, with all your care and attention, they will die of scrofulous disease. Those from the West Indies less frequently die of scrofula than those from the East Indies ; but I have seen some from the South Sea Islands, and most of them have died from scrofulous complaints.

“ From this statement, then, gentlemen, you see that children born in warm climates, and subsequently brought to this country to be educated, frequently perish. Although we have proof of some climates predisposing to this complaint, and favouring its production more than others, yet the most striking effects are manifested by the changes of the seasons, after scrofula has occurred. Thus, for instance, if a child with scrofulous disease be examined in the spring, and it has a gland that is inflamed, the complaint will go on during the spring till the summer months, when it will be arrested, and the health of the child improved. In this state it will remain till October and November and then the child will become worse. By the alteration of scrofulous com-

plaints, from the changes of the seasons, a surgeon often loses credit, though he more frequently gains it. He will lose credit, if called to the child in winter, because then the state of the child's health will be in an improved state, compared to what it has been, which state, however, continues only for a short time, as it becomes worse with the return of spring: the surgeon will gain credit, if called to a child in the spring, because, being at that time very unwell, it continues so only till summer, when it rapidly recovers. In summer the symptoms disappear, in autumn they return, and continue till the winter, when they again become suspended. I remember being once called on to subscribe to a charity instituted for the cure of scrofula, and I said that I had no objection to subscribe, if its benefits were to be extended throughout the year; because, if its operations were to be extended all the year round, the eyes of the subscribers would be opened to the inefficacy of any charity of the kind. The way also to try the value of nostrums, blazoned forth as specifics for the cure of scrofula, is to watch their effects during the whole year, for else you may be deceived; they may occasionally afford benefit (which I do not mean to deny), but as to any specifics for the cure of the complaint, I need not tell you that such do not exist.

“ Well, such are the effects of climate and the changes of the seasons, on persons born with a debility of constitution, giving rise to inflammation of the scrofulous kind.

“ With respect to the state of body in scrofulous children, the blood is less firm, the crassamentum loosely formed, and coagulating weakly; the quantity of serum abundant; and the solids are feebly formed. When you dissect a scrofulous person, you find extreme attenuation of the muscles, owing to the fibres being delicately formed, the cellular tissue thin, the heart weak, not at all having the appearance of the healthy organ; you find the arteries with loose coats, and, if you were to inject them, that the injection would scarcely reach the extremities; nor is this surprising, since it happens that the vessels often expand and give way, and also that there is blood at the extremities of the arteries, owing to the great weakness of the vessels; that they had not power of propelling it into the veins as they usually do. The stomach

and intestinal canal are thin and pellucid; the absorbent glands are enlarged; the secretory glands are flaccid, but not diseased; and the nervous system sometimes exhibits marks of irritation having existed in it. This is, as far as we are able to detail, the nature of the disease.

“The principles on which the treatment of scrofula should be founded are three: 1st. To make better blood; 2nd. To strengthen the solids; 3rd. To give vigorous action to the circulation.

“To one or all of these principles, every mode of treatment should be referred. The action of the heart and arteries is naturally feeble, the serum of the blood preponderates, whilst the fibrous portion is deficient in quantity; therefore, you must make better blood, strengthen the solids, or give a vigorous action to the system. The first object is to make better blood, and without this nothing else will be of avail. I cannot sufficiently deprecate the system of ordering vegetable food in scrofulous diseases, and proscribing animal food, which is most nutritious and easy of digestion. Vegetable food is more difficult of digestion than animal food; and many animals who live on it have more than one stomach to perform the different processes of digestion; some have only one, but then they are abundantly supplied with gastric juice, which is secreted in greater quantities than in men; and nature adds to the digestive powers by setting up another process in the intestines below, when animals have only one stomach. Vegetable food should not be given to children labouring under scrofula, as it leads to an aggravation of the complaint; but meat should be allowed, prepared so that the stimulus of the gastric juice, which is weak, may be able to act on it.

“Whilst at Brighton once, on a professional visit, I enquired if the number of scrofulous children were as great there as in other parts, and I found that it was. In the latter part of the spring and autumn the sea-coast is desirable, but in cold weather it is not. The bleakness of the air of the sea-shore is unfavourable to the constitutions of children tainted with scrofulous complaints. Air, exercise, and nourishment, are the three great points to be kept in view in the treatment of scrofulous affections. But what—you will say

—nothing about medicine? Gentlemen, you may lay it down as an axiom, that there is no specific for the cure of scrofula; and he who says that there is, attempts to gull mankind by the assertion of what is not true. Medicines, occasionally given with a view to improve the digestive powers, and regulate the secretions, are good, but attention to the three points I have just mentioned, are of primary importance.”

It is clear that Sir Astley mistakes the *effect*, for the *cause*. He says, the cause is debility, inflammation, and ulceration; which is certainly not the cause itself, but the effect of a cause or causes. I will shortly point out the cause. It arises from acidity in its mildest form, and acridity in its most virulent form. If Sir Astley will call at my residence, I will prove my position, and shew that when mercury and antimony are given in mild cases, they cause ulceration of the glands, and when exhibited in acrid cases they disease every organ of the body, particularly the glands, blood-vessels, nerves, and bones. The acidity and acridity or what Cullen calls *acid acrimony*, is produced from the bad agricultural policy pursued in this country. In consequence of the tithe system, the land has laid so long in permanent pasture, that the whole of the salts and alkalies are nearly extracted from the soil. Fruit, grass, grain, and vegetables, grown on such soils possess a high degree of acidity, which affects the health both of man and the inferior animals. The soil soon becomes sterile; it is then top-dressed with recent manure, which produces every description of acrid vegetables, and poisonous insects. They in their turn attack and disease the grass and grain; from them the disease extends to animals, and through them to the human species. Hence they are debilitated, and when the long catalogue of poisonous drugs is poured into their stomachs, we need not wonder at the occurrence of that severe inflammation, ulceration, and gangrene, which Sir Astley so admirably describes. In noticing the progress of scrofula, he observes, that it begins in the spring, gets better in summer, and worse in autumn; spring and autumn, the two seasons when buttercups flourish the most abundantly. In April, May, and June, the fat of meat, butter and cream, are poison to the patients. The heat of summer destroys the stems of

the buttercups, and other poisonous weeds, and then the patients improve in health. About the middle of October the buttercup springs up again from the roots, and the patients become worse—the plants being then excessively acrid. Those who are sceptical on the subject may have their doubts removed, by the following simple experiment. Let them anoint their lips and tongue with cream a day old, skimmed from milk the cows produce which have fed on buttercup pastures. Let it remain there for fifteen or twenty minutes, without wiping it off. I need not describe the effects—the experimentors will soon ascertain it. This will do more to convince them than any argument I can advance.

Sir Astley Cooper particularly asserts that scrofula is incurable. He may have an opportunity, if he will kindly condescend to call on me, of seeing a number of scrofulous patients, and of observing that his opinion is unfounded; and I have no doubt but that he would at once declare that scrofula is a curable complaint. It is not fame which I am seeking, but the public good; and if Sir Astley be actuated by the same motives, which I really believe to be the case, he will accept the challenge. If Sir Astley will collect some scrofulous patients in the neighbourhood of Bayswater or Kensington, I will undertake with my Medicated Vapour Bath and alterative medicine, if strict attention be paid to diet, to cure them—provided they are fair cases. I do not consider those fair cases where the bodies of the patients are a perfect compound of poisonous drugs. By a simultaneous effort of the government and the people, we could in ten or fifteen years banish scrofula and cancer from the kingdom altogether. Of that I am as well convinced as of my own existence.

Sir Astley never was more mistaken than in his remarks regarding vegetable diet; for he will find that that portion of the peasantry of Wales, Scotland, and Ireland, who scarcely ever take animal food, are by far the healthiest in the kingdom, and possess the strongest intellects. They take nothing but porridge or stir-about for breakfast, and dine on bread and milk, or bread and cheese, or potatoes. There is no scrofula among them. They only require those advantages of education which we possess, to make them the

finest people in the world. Dr. Cheyne's remarks (the first physician in the seventeenth century) abundantly testify to this fact.

As to that dreadful disease cancer—which has hitherto been considered unmanageable, I may remark, that however various the theories advanced, and however discordant the opinions entertained in past ages, with regard to its cause, they all held but one opinion respecting its issue; viz., that it must terminate fatally.

Mason Good, after quoting the numerous theories advanced, observes, that all mineral and vegetable poisons as yet known having been tried internally and externally, without effect, recourse must be had to amputation. But he says, "Even this remedy, however, can only apply to exterior organs. In all other instances, the practice is melancholy from the first. The die is cast almost, if not altogether irrecoverably; and all we can hope to accomplish is, to postpone the fatal result, to mitigate the sufferings of the day, and soften the harsh passage to the tomb."

Mr. Lawrence observes, in his Lecture on Cancer, "If all the medical men of eminence in London were asked if cancer could be cured in any stage, they would decidedly say, no." But I rejoice to say, that I can generally succeed in dispersing cancerous tumours in their incipient stage, and mitigate the suffering in every subsequent one. Indeed, I have succeeded in curing internal cancer in a number of cases. As to the cause, it is the fasciola or fluke of Linnæus and Leenwenhoek; and is what Sir Astley Cooper and many others call *hydatids*. Cancer is terribly aggravated by butter and the fat of meat. It keeps up the most inveterate inflammation, and rapidly progresses to ulceration: thereby causing the increase of the foetid discharge attendant on cancer in the ulcerative process.

I will now briefly quote the opinion of some of the most eminent medical men (and whom the younger branches of the profession are taught to regard as authorities), on the destructive influence of mercury. Dr. Mason Good, in an article on the Bones, contained in the History of Medicine, observes, that rickets, and spongy or diseased bones were

unknown to the ancients ; that they were first described by Dr. Francis Gliston, an English Physician in 1650. Mercury was first exhibited internally about a century before this period, but was not generally administered until this time ; and, notwithstanding the dreadful consequences it then produced, and the solemn warnings of many respectable physicians against its employment, it has been given down to the present period, and has now diseased upwards of two-thirds of the inhabitants of the British Empire. For the last twenty-five years I have used my utmost endeavours to detect a case of scrofula, accompanied with diseased bones, in which mercury or antimony had not been resorted to for the cure of the disease previously to the appearance of the latter, but have not been successful in meeting with a solitary instance. Dr. George Cheyne, who was deservedly esteemed as the best practitioner of the day, published a work on the Diseases of the Body and Mind, in 1742 ; and, in treating of Scrofula, he remarks that it is merely a glandular disease ; that there was only one method of curing it then known, the excision of the tumour ; that it was particularly prevalent in those countries where the inhabitants indulged too freely in the use [of animal food, and strong fermented liquors ; that these were the principal causes of the disease in England, and the most fruitful sources of all affections, occurring after the age of thirty-five. When I visited New York, in 1794, scrofula, cancer, and insanity were maladies unknown there, except among those who emigrated from Europe. Since that time, however, a number of the advocates of mercury and antimony have visited the United States, and have spread their pestiferous doctrines until nearly half the inhabitants have become affected with those dire complaints. Professor Kalm, one of Linnæus's pupils, made a tour through the United States seventy years ago, and remarked that then carious teeth were scarcely to be met with ; but at the present day there is hardly a woman, and but few men, whose teeth are not decayed. One of the principal dentists in New York informed me, that a large proportion of the children in that city were labouring under carious teeth, induced by the exhibition of mercury.

Robert Liston, Esq., professor of clinical surgery of the University of London, in a lecture published in the *Lancet*, January 10th, 1835, has made the following judicious observations on the use of mercury.

“ The fashion which has prevailed regarding the constitutional treatment of local diseases has been carried much too far, and to the neglect, very often, of palpable local causes. It is surely absolute folly to incur the risk of ruin to a patient's health by adopting general treatment for diseases which are purely local, and dependant upon local irritations. ‘Alterative medicines,’ as they are called, are prescribed and poured into a patient, most frequently when the progress of a case is not satisfactory, when the practitioner is baffled by inattention to the principles of treatment, and, probably, by that indiscriminate employment of external remedies which has already been reprobated. I left a few good cases in the Royal Infirmary of Edinburgh, exhibiting the fruits of such mismanagement. One poor fellow had been treated to no less than six courses of mercury. He had been a fine, tall, handsome fellow, but his health was now broken. He had ulcerated palate to a fearful extent, abscess in the corner of his eye, the spongy bones were dead, and in process of separating, and there was such a discharge, and such fœtor, as were quite overpowering. It was almost impossible to come within arm's length of him.

“ I had, but a very few days before giving up the charge of the Edinburgh Hospital, to put a new nose upon the face of another patient,—an operation which I think I must have performed in nearly twenty cases, besides patching very many more. In this instance, as in most of the others, the loss of the whole organ, bones as well as cartilages, together with the greater part of the palate, was attributable to the improper use of medicine.

“ One other case, and I have done with this part of the subject:—

“ A middle-aged gentleman came to consult me; he was quite lame, in consequence of violent pain in the fore part of the thigh, in the course of the external cutaneous nerve. He could not walk without grasping the limb with both hands. He showed me a swelling in the abdominal parietes immedi-

ately above the ligament of Poupart, evidently full of matter. He was much emaciated, nervous, and shaky all over, skin rough, and hair dry; in fact, he was altogether out of condition. He was out on the hills, grouse shooting, and, after violent fatigue, and when much heated, sat down on damp grass, and remained exposed for a considerable time. On returning home, he had a shivering fit, which was speedily followed by a glandular swelling, which, after a short time suppurated. He had, during this swelling, alterative treatment, Plummer's pill, &c. The swelling in the abdominal parietes began to show itself. Calomel, and afterwards blue pill, were then substituted and persevered in, until his constitution was altered,—no one would have been so bold as to say for the better.

“ Such are the too frequent, the every-day results of the doctrines respecting the ‘constitutional management’ of local diseases, being misunderstood and misapplied. Some few get over the effects of such treatment, blessed with constitutions which nothing seems to injure; but, on the other hand, many thousands every year have their constitutions so shattered, so much affected by alteratives, so changed, that their most familiar friends, after a short absence, would not recognise them. Nose and teeth, palates, eyes, and bits of skull are deficient; their health is broken and destroyed for ever; their limbs become attenuated and tremulous, and they are crippled by swollen joints and bones. This is no overcharged picture.

“ In such cases, a judicious practitioner may, and often can, prove the good effects of general treatment; the shattered frame may be patched up. By removing sources of irritation—by attention to the secretions, to the condition of the digestive apparatus, and the external surface—by tonics, diet, baths, friction, clothing, change of climate, &c., much may be effected. But inconceivable mischief has arisen from inconsiderate and indiscriminate adoption of the late Mr. Abernethy's views. I do not mean to question their correctness, or the advantages derivable from the practice when employed judiciously and to a limited extent. I was well and intimately acquainted with Mr. Abernethy, and entertain a high respect for his memory. He was a great enthusiast

in the profession, and a good and persuasive writer ; and a young surgeon, not making proper allowance for this, would be led to suppose that all diseases incident to humanity could be controlled and rendered curable by the method he recommended. It is very simple, and saves a world of consideration and thought. Some of his followers would have one believe that glandular enlargements, both internal and external, are removable by the long-continued exhibition of mercury in small doses. Nay, that even *tumores mali moris* malignant growths, may thus be arrested in their progress, and rendered innocuous. The time for more decided interference is thus permitted to elapse, and the patient is irretrievably lost. So far as I have observed this matter, what is called ‘scrofula’ is more frequently engendered and developed than cured, by mercurial preparations ; and, not only in the individual so treated, but in his or her descendants.”

I feel pleasure in adding my testimony to the accuracy of the above statement ; Mr. Liston’s lecture breathes the spirit of an honest and intelligent man ; and I consider that the public are under great obligations to him. The late Dr. Mackintosh and Dr. Thomson, surgeons to the British forces in Scotland, have not allowed a single grain of mercury to be given to the troops for sixteen years past, and have not failed to keep them in excellent health. I may here state, that M. P. Orfila, M.D., of the faculty of Paris, observes :—“ The study of mercurial poisons demands, on the part of the physician, the most scrupulous attention. Without the slightest knowledge of the nature of these bodies, of their powerful and instantaneous action upon the animal economy, without the least regard to the constitution of the patients, whose confidence he has usurped ; pretending, even, that there is no danger whatever in the exhibition of these substances—he dares to introduce into our organs tremendous doses of mercurial preparations, which never fail to produce the most fatal effects. Almost all vegetable and animal substances, our organs themselves decompose. In vain should we seek, in general, for corrosive sublimate in the liquids vomited ; neither are the contents of the stomach more calculated to discover its presence. The decomposition which it has undergone, by its union with other substances, has rendered it

insoluble. *It is in the solids, in the texture itself of our organs, that it must be sought for.* Such being the case, does it not become indisputably necessary to determine what are the changes which the aliments most commonly affect in these poisonous substances; and, consequently, ought we not to commence their history, by a complete investigation of their chemical properties."

A medical superintendent of one of the largest mad-houses in England, for fourteen years, informed me, that at least eight out of ten cases of insanity, during that period, were caused by the use of mercury. Broussais, of Paris, calls those doctors who administer mercury "legalized murderers." Sir Astley Cooper, Dr. Thornton, Mr. Mathias, Mr. Wright, and Mr. Lawrence of London, and Dr. Mackintosh, of Edinburgh, have pointed out the dreadful effects of mercury and antimony on the fluids and solids of the body. One of the communications to the Emperor of Russia states, that the people treated with mercury were most subject to cholera, and those treated with mercury and opium but seldom recovered; and if they did, they were subsequently carried off with other complaints.

About two centuries ago, a disease broke out in Scotland, called sibbins, or sivins, respecting which Dr. Mason Good affirms, that it is literally rubula, yaws, or raspberry eruption. Dr. Gilchrist, in the Highlands, and Mr. Hill, of Dumfries, both considered it a very infectious distemper, and treated it with mercury, by which its malignity was very much aggravated. The disease still continues to prevail in Scotland; and in a tour which I made through the Highlands, I discovered it to be entirely owing to the eating of sheep which had died of the rot, or what is there termed the braxy. I found the affection readily yield to a very simple mode of treatment,—that of confining the patient to water-gruel, and exhibiting aperient medicines, chiefly rhubarb and cream of tartar. Where mercury was given, it produced a swelling in the glands, particularly in the throat, and a decomposition of the bones and solids of the body. I have for the last thirty years observed this disease in the West India Colonies, in America, and in Great Britain; and in every instance it has arisen from the consumption of diseased meat, and bad milk

and butter. The disease called sibbins, in those countries, as in Scotland, is converted into the yaws, scrofulous swellings, and diseased bones by the use of mercury. Dr. Mason Good has given an appalling description of the ravages of the disease; but such effects would never have ensued, had not the patients been poisoned by mercury and antimony. I find the same eruption prevail in London to a great extent every spring and summer; and, where mercury has not been used, the disorder readily yields to my bath and practice.

In cancerous affections, mercury invariably leads to fatal results; it throws the disease on the bones, glands, liver, lungs, and, in short, every part of the body. Whenever I find that mercury has been administered, I always consider that the die is cast. Its operation is equally fatal in scrofula; and I believe with Mr. Liston, that scrofula is more frequently engendered and developed than cured by mercury; whereas my bath and alterative treatment seldom fails to effect a cure even in the most desperate cases.

The employment of mercury in cases of consumption cannot be too strongly reprehended. I consider phthisis pulmonalis, or consumption, to be simply scrofula affecting the lungs: and the fatality of the disease is strikingly pointed out in a review published in the *Lancet*, of the 10th January last, of Dr. Clark's *Treatise on Pulmonary Consumption*, and of a work by Dr. Young on the same subject. "Phthisis," says he, "contrary to the general conviction in this country, is more frequent in childhood than in after life. The mortality it induces in the third and fourth years is very great; few are born tuberculous, or become consumptive in the first year; in the sixth, seventh and eighth years, seven-tenths of those that die contain tubercles. At least, these are the proportions found by Dr. Papavome, at the children's hospital in Paris; and there seems good reason for believing that the proportions are not very different in this country." But if we add to the number of those who die of decided consumption, the fearful catalogue of diseases arising from a scrofulous habit of body, and if we consider the treatment generally employed, we may venture to assert that eight-tenths of the population of England, now under twenty years of age, must die from that malady under some

of its multifarious forms, unless the use of mercury and antimony be at once prohibited. I fully agree in opinion with the above scientific gentlemen as to the effect of scrofula; but, neither of them having defined the primary causes, I will take the liberty of stating them in a few words. The disease may be said to originate in the injurious agricultural policy pursued by this and most other nations; common sense principles have been overlooked in the ardent pursuit of philosophical and scientific experiments. The Mosaic agricultural policy is the best code of health ever developed to man; and it was by its adoption that the Jews, and after them the Romans, attained to such a remarkable height of national prosperity. The Dutch, and latterly some of the Scotch, have partially adopted this system; and its effect is clearly manifested in the improved quality of their meat.

Without entering into any political discussion, I must say, that one of the greatest injuries to England and Wales has been the mode of collecting tithe. Some years ago, an Act of Parliament was passed to lessen the tithe on grass land, and the consequence has been that a great portion of the land has for many years lain in grass; so that the soil has become completely exhausted of its salts and alkalies—and hence the produce has become sour. The fields have been top-dressed with recent manure until the entire surface has become covered with poisonous weeds, sour grass, and insects. The latter have attacked the grass and grain, so that the stock has become bloated by the acrid food, and diseased by the insects. This I am prepared to show, by experiments which have been made, is the real cause of nearly all the diseases under which both animals and the human species are now groaning. But the mischief does not terminate here. This system of agriculture is opening the flood-gates of immorality, and blasting the hopes of numberless parents. You may as well argue with the wind as with the rising race, while their passions are stimulated to madness by the quantity of acrid substances which they consume. If the whole of the inhabitants of this empire were subjected to a chemical test, it would be found that ninety out of every hundred were labouring under acidity or acridity.

And here, again, I must for a moment recur to the effects

of mercury and antimony. Poisonous and injurious as those minerals always are, their noxious properties are increased to an incalculable degree, if taken into the stomach when the system is in the acrid state I have just described. Their exhibition, then, even in the smallest doses, has created more misery to the inhabitants of Europe and America, than all other evils conjoined. The bodies of the unfortunate sufferers have literally been converted into living thermometers and barometers, their constitution has been destroyed, and the image of God's fairest workmanship alone been left. The Emperor of China punished opium-eaters with death, assigning as his reason, that they brought a diseased progeny into the world, which he considered a nuisance to the celestial empire. What, then, ought our gracious Sovereign to say to the administrators not only of opium, but of mercury, and antimony, and all other mineral and vegetable poisons?

With regard to the cure of the diseases to which I have adverted, the Report of the Committee fully bears out the assertion, that nearly every case can be cured if the patients apply before a change of structure has taken place, or they have been poisoned with drugs. I should have entered more at large into the great importance of wholesome diet, so necessary to the healing art; but the subject has been ably handled by the fathers of medicine, Hippocrates, and Galen. The first, in his small treatise on diet, endeavoured chiefly to prove, that the souls of all men are alike; and accounts for the difference observable in their understanding, from the excess or moderation of their appetites, and the quality of their food and drink. The second has successfully demonstrated the influence the various diseases of the body have upon the faculties of the soul. There are now more than sixteen centuries elapsed since he desired that philosophers, who were intrusted with the education of young persons, would confide such as were irregular in their conduct to his care. "Let those," says he, "who doubt whether some can be restrained, others spurred on, some become incontinent, others sober, enterprising, or timorous, mild, modest, or morose, according to the difference of their food—let them apply to me to settle what diet may be necessary for them, and they will soon find themselves better disposed to natural

philosophy, and more capable of improving the powers of a rational soul, when I have strengthened their sagacity and memory by these means, and that they are become more knowing, and more ready to apply. For, besides what relates to their food and drink, I will also teach them the influence of the winds, the nature of the atmosphere which surrounds us, and point out to them those places which are best adapted to their constitutions, as well as those which they must avoid." How largely soever I might have expatiated upon this subject, it would scarcely have been possible to take notice of all the connections which law and physic have with each other. If the legislator would compile a code of laws, or the judge on the bench decide any questions relative to civil, common, or ecclesiastical law, they will meet with many instances in which they will be obliged to call in the principles of our art to their assistance; and to apply to that extensive branch of physic commonly called the *medicina legalis*, or medicine of the bar.

The great Galen was more successful in the treatment and cure of consumption, than any physician, ancient or modern. His splendid genius and almost miraculous cures, spread his fame throughout the civilized world; and from every country in Europe the consumptive sought his advice. A more salubrious situation could not have been fixed upon than his place of residence on the banks of the Tiber, so famed for the whiteness and sweetness of its fresh flowing water. The soil in the neighbourhood was peculiarly adapted for the growth of the finest vegetables, and the pasture lands, covered with the agrostis, lotus, polygonum and melyssophyllum, fed large herds of goats for supplying the patients with milk. That, together with the various farinaceous grains, and simple decoction of herbs, constituted his plans of treatment. As his patients became convalescent he made them sail down the Tiber, to use the cows' milk of Stabiæ, which was peculiarly celebrated for its excellence,—the soil consisting chiefly of calcareous earths and chalk; and there the patients remained until the cure was completed. His skilful combination of herbs, founded on the doctrines of Hippocrates, were in universal request, and known as the Galenical medicines. The splendour of his talents so completely

dazzled his successors, that for a period of sixteen hundred years his medical principles and opinions had universal sway. A similar plan of treatment was adopted by me at my late residence at Bayswater ; the cows fed on the same species of grasses, and the patients lived principally on milk diet. My success has been great, considering the inveteracy of the cases. In the month of March, when consumptions, bronchitis, and other infections of the chest are more frequently observed to commence, patients applying at that season of the year may almost to a certainty expect a cure in the above complaints ; as well as cancer in its incipient stage, and the various diseases enumerated.

During the last twenty years of my life, I have wandered much about the world, and studied diseases from actual observation, among various nations, or in different climates ; and from long experience, and the knowledge of natural things, which the study of nature and the conversation of informed men have afforded me, I am of opinion that the greater part of our bodily disease is the result of improper food and medicine. The knowledge I obtained from books, and modern ideas—I will not call them philosophy—I found on trial and experience to be greatly defective ; and was led to throw aside such unsuccessful methods of medicine, not making use of any mineral drugs, nor any narcotic, acrid or corrosive vegetable poison whatever. I confine myself to such only as will effect a lasting cure, such as alteratives, with the Vapour Bath, properly medicated, and a proper diet with air and exercise.

In the works I have published, which are “ New Medical Discoveries ;” “ Linnæus’s *Materia Medica* ;” and a “ *Treatise on Fever and Inflammation*,” I have stated all that can be said on the subject, and have pointed out the necessity of a proper renovation of the soil and manure, in order to produce the most wholesome grain, fruit and stock, and to insure health. This is my general system, and brings all that can be pertinently said on the cure of diseases into an easy and intelligible view, and makes many of the same methods and medicines common to different cases and patients. Whatever exceeds this, is calculated either to hasten the death, or to keep up the courage and hopes of the patient. It would not

become me to say, that the method I have laid down, if judiciously applied, will in every case absolutely cure or save ; this, however, I venture to affirm, that by perseverance it has succeeded in extreme bad cases, and by God's blessing, will do more than any system hitherto adopted. I may be deceived myself, but if I know my own heart, I have not a single temptation to deceive others. My age is little short of seventy years ; and having followed these rules for thirty years, I am at this time happy, and in the enjoyment of my senses, and the faculties of my mind are in full vigour. But after all, though I should convince the world, I must not expect to convert it. Abstinence and self-denial lose their weight when offered to strong passions, and high spirits ; and the greater part of my disciples will probably always be such as have laboured through tedious courses of physic without success ; whose sufferings have soured the false pleasures resulting from sensual appetites ; and who are at length willing to renounce luxury, in order to lessen misery. To those I seriously affirm, that this method, strictly and for a time sufficiently persevered in, will impart all the benefit which human art can devise, or human nature receive ; and the observance will procure calmness and ease at the period when all the resources of art shall prove of no avail.

I may remark in conclusion, that in America the institution of Vapour Baths has been attended with amazing success. To the Committee of the New York Vapour Bath Company, the physicians who superintended the baths, among whom was Dr. Wm. Ireland, reported the successful treatment of two hundred and twenty-seven cases, in the quarter ending 1st October, 1825, with a list of the various diseases with which they were afflicted. Out of the number of cases submitted to the bath, it was proved, that in acute and chronic inflammation, more benefit had been derived from the use of the Medicated Vapour Bath in twenty-four hours, than had ever been witnessed in a month's most successful practice—amounting to :

Cured	468
Relieved	186
Not Relieved	27

Mr. Whitlaw further deems it necessary to say, that a number of invalids are constantly coming to his Establishment to enquire if they can be cured of their disease, as their medical man had told them that they could not, as their disease was not included in the list reported to have been cured at the Institution, and they also had told them the vapour bath was an excellent remedy, but would be certain death in their case, let their disorder be what it may. There are many honourable exceptions among the Profession, who would be happy to introduce any practice for the benefit of the afflicted, but there is no reflecting mind which knows the human heart, but must know how hard it is for medical men to give advice which would deprive them of their income, for the benefit of their patients; I have therefore added a particular list of the different diseases successfully treated at my different Vapour Bath Establishments, both in England and America for the information of invalids, viz:—

Rheumatism	Impetigo Excidens (Erosive Scall)
Dyspepsia or Indigestion	Diseased Liver
Palsy	Spinal Affection
Leucorrhœa	Dropsy
Pulmonary Diseases	Palpitation of the Heart
Scald Head	Worms
Erysipelas	Chronic Rheumatism
Coryza (Malignant)	Consumption
Porrigo Favosa of the Face	Spinal Diseases
Elephantiasis	Paralysis
Scirrhus and Cancer	Epilepsy
Nervous Debility and Loss of Voice	Sciatica and Lumbago
Chronic Inflammation of the Stomach	Tic-doloureux
Asthma	Mercurial Diseases
Scrofula	Severe Headaches
Suppressio Mensium	Common Colds
Catarrh	Ringworm
Leprosy	Cutaneous Diseases
Scurvy	Female Obstructions
Painter's Colic	Pleuritis
Giddiness	Ulcerated Legs
	Hip-joint Disease

Determination of Blood to the Head	Bowel Complaints and Bilious Cholera
Cancer and Tumours of the Breast	Cholera Morbus
Partial Amaurosis	Cancer of the Tongue
Diseases of the Chest and Lungs	Bronchitis
Scirrhus Tumours	Fever and Ague
Diseases of the Stomach	Hysterics and Nervous Diseases
	Influenza and Severe Colds

The bath is the best remedy yet known in the cure of consumption, bronchitis, and all disorders of the chest and lungs.

In curing influenza the bath and medicine is a perfect specific. Where those agents have been used no case of death has occurred since 1827 up to the present time. Numerous cases which were treated for influenza by medical men of the first standing, and had been given over by them as dying with consumption, have been cured with the bath and attendant dietetic treatment.

WEST LONDON

Medicated Vapour Bath Institution,

No. 15, BROAD STREET, GOLDEN SQUARE.

At a Meeting of the PROVISIONAL COMMITTEE, held at Mr. WHITLAW'S Private Establishment, No. 30, *Argyll Street, Regent Street*, on the 24th April, 1837, for the purpose of Establishing a VAPOUR BATH INSTITUTION, for the *benefit of the Poor*, at the West end of the Metropolis, on the Medical Principles of Mr. WHITLAW, the following Address was agreed to and ordered to be printed and circulated, in the hope of carrying this most laudable object into effect.

The Committee beg to lay before you the proposed plan of establishing, at the West end of London, a *Medicated Vapour Bath Institution, for the benefit of the operative mechanics, domestic and other servants, and sick poor*, conducted on the Medical Principles of Mr. WHITLAW, which have now stood the test of many years, both in the East Indies, England, Scotland, Ireland, and America; and been sanctioned by the most distinguished Patronage. About thirty-five years since, Mr. Whitlaw observed the extraordinary medicinal virtues possessed by the plants made use of by the American Indians, and also the cures they effected, with the assistance of their Bath—formed in a very imperfect and peculiar manner—thus: A few heated stones were heaped together, round which something like a soldier's tent was erected; the person or persons receiving the Bath were seated round the stones, upon which herbs were thrown, and water sprinkled with the hand; the heat and vapour arising

were suffocating in the extreme. This circumstance stimulated Mr. Whitlaw to direct his attention exclusively to the subject ; how far a Bath constructed on correct principles, and medicated with plants, the medicinal qualities of which had, by actual experiment, been proved, could be rendered generally applicable to disease. From many years' experience, and his practice having been crowned with perfect success, his labours have terminated in the production of a Bath, complete in every respect, and an agent more powerful than any known in the history of medicine ; which, with the medications, vegetable medicines, and dietetic treatment, offers the most *simple* yet most *effectual* means of alleviating and curing a great multitude of those diseases "flesh is heir to." The Committee would wish to draw your attention to the difference which exists between this and other Baths, the main object of its Patent principle being so to attenuate the Vapour as to render it invisible, whilst, in those commonly used, the Vapour rises in such a dense state as to produce a sense of suffocation. Mr. Whitlaw's Vapour Bath has not only decided advantage in this respect, but also in reference to its medical powers, through the various medications. Herbs, gathered in America, at particular seasons, with due attention to the soil which develops their medicinal virtues in an eminent degree, are properly prepared and preserved, and combined according to the object they are intended to effect ; their essential oils are carried up in the form of vapour, and not only act on the skin, but are inhaled by the lungs, producing a grateful but powerful effect on the whole system. Inflammation and fever of every description are speedily overcome. Scrofula, in all its various forms, Consumption in its incipient stage, Cancer, diseases of the Windpipe and Liver, and *all* Cutaneous affections, which in the present day have become so prevalent, especially among the poorer class of the community, readily yield to the plan of treatment purposed to be pursued at this establishment,—as

previous experience will amply testify. The Vapour Bath possesses the power of producing perspiration, in *any state of the body*, at will, and therefore must be highly salutary and efficacious, equalizing the circulation, and removing all tendency to a *determination of blood to the head*. When the body is labouring under disease, the restoration of that salutary discharge from the skin is the first symptom that indicates an approach towards a recovery; and where that cannot be accomplished, morbid action *must* be present, and disease continue; for the matter thrown off by perspiration is positively deleterious, being partly composed of noxious gases; hence the numerous contrivances and means adopted in all ages, and in all countries, to promote this *absolutely* necessary and healthy action on the surface of the body. Pure morals have been invariably connected with cleanliness; we would, therefore, claim for this Bath the merit of having, in this respect, a friendly influence upon society. The district in which it is intended to establish this Institution, is a very populous one, where, from the crowded streets and alleys, the wretched inhabitants are falling daily under the rapid progress of disease, without any effectual means of arresting it. The trifling sum required for the admission of Patients is considered to be on a very liberal scale, by which the industrious Mechanic, when under affliction, although his hard earnings will not open the portal of relief to him elsewhere, may here find the assistance he is in need of, and offer the same boon to his suffering family.

In America, a number of the most eminent medical men have given in their adhesion to Mr. Whitlaw's plan of treatment, and become active promoters of his system. Dr. Ireland, of New York, in a letter to Mr. Whitlaw, after enumerating a catalogue of diseases he had successfully treated, writes thus,—“With these, and numerous other incontestible facts before us, who can dare to say, that the Medicated Vapour Bath is not one of the greatest blessings that was

ever invented for the relief and cure of suffering humanity? I am myself so fully satisfied of its very extraordinary and powerful effects, that I would not be without it for all that I have hitherto known in my profession. Had I been acquainted with the Vapour Bath, while surgeon to the British army in the West Indies, how many thousands could I have saved from the unrelenting jaws of death! and how would my mingled feelings of sorrow and regret have changed to satisfaction and pleasure!" Such is the language of one who has observed minutely the powerful agency of the Bath in question; and it is for the purpose of extending its beneficial effects to the *poor* at the West end of London, whose circumstances call loudly upon the benevolence of the wealthy, and whose afflictions claim the sympathy of all, that we are influenced to address you, and solicit your powerful aid in carrying this most laudable object into effect. Mr. Whitlaw has generously offered the gratuitous use of his Patent, for the benefit of the Institution.

It is expected that suitable premises may be rented in the Parish of Saint James, or its vicinity, for £60 or £70 per annum, until the funds will admit of an appropriate building being erected, and that the total annual expenditure will be about £300, to raise which we respectfully but earnestly appeal to you for your donations and subscriptions.

Signed on behalf of the Committee,

ALEXANDER FLETCHER, A.M.

HONORARY SECRETARY.

April 24th, 1837.

Donations and Subscriptions received at Messrs. DRUMMOND and Co., Charing Cross; LONDON AND WESTMINSTER BANK, Waterloo Place, Pall Mall; SIR CLAUDE SCOTT and Co., Cavendish Square; by Mr. HICKSON, 72, Welbeck Street; Mr. Nock, Regent Circus, Piccadilly; and by Mr. WHITLAW, 30, Argyll Street, Regent Street. The Rules and Regulations may be had of Mr. Whitlaw; and at the Institution.

MR. WHITLAW informs his medical friends and the Public, that he has recently imported from America a large and extensive collection of medicinal herbs and extracts, comprising a complete Materia Medica from the vegetable kingdom, applicable to the cure of most diseases with which mankind are afflicted. Humane individuals in the various cities and towns in Britain, who may wish to alleviate and cure the sufferings of their fellow-men afflicted with scrofula and other dreadful disorders, may have his Patent Medicated Vapour Bath introduced at a very moderate expense, with medication and medicines, suitable to the various diseases for which it has been so successfully employed for seventeen years in London, and many other parts in the kingdom.

Many of the Nobility have used Mr. Whitlaw's baths and practice, in curing their poor neighbours, with decided advantage; and a number of the Clergy, and others, have administered Mr. Whitlaw's medicines for the cure of scrofula, and other diseases, without the Bath, with great success.

Mr. Whitlaw may be consulted every day at his Establishment, No. 30, Argyll Street, Regent Street, London; where Letters (post paid), containing a statement of cases, and enclosing a fee for advice, will be punctually answered; and Medicines, with proper instructions for use, for ready money only, or a reference in London, forwarded to all parts of the kingdom.

Persons residing at a distance from the Metropolis, who may wish to place themselves or children under Mr. W.'s care, can be accommodated with Baths and Medical treatment at his Establishment, and may obtain good accommodation at the Boarding-houses in the neighbourhood, or at Bayswater, to and from which conveyances pass Argyll Street every half hour. The salubrity of the air, with the acquisition of Kensington Gardens, renders Bayswater one of the most desirable places in the kingdom for invalids; and particularly for persons in Consumption, and all affections of the lungs and wind-pipe.

SPECIFIC IN ASTHMA, AND OTHER DISEASES OF THE CHEST.

The ethereal tincture of the *Lobelia Inflata*, as prepared by Mr. Whitlaw, is found to be the most valuable remedy hitherto discovered, in the cure of asthma, bronchitis, loss of voice, and other affections of the chest and windpipe. It has received the unqualified approbation of the most eminent medical men in England, and is now extensively used in the largest hospital in the kingdom.

Professor Dr. Elliotson, in a lecture delivered at St. Thomas's Hospital, as reported in *The Lancet*, Jan. 26, 1833, speaks thus of the medicine prepared by Mr Whitlaw: "As for an ethereal tincture, such as I have seen, 7 drops will answer exceedingly well. It may by some persons be made weaker than it should be, but that which we use may be given in doses from 7 drops to 20. Ten drops in some persons produce sickness, with many it acts as a charm, and in 10 or 20 minutes they will be perfectly relieved; so that all other remedies used in Asthma are nothing to be compared to it."

To be had of Mr. Whitlaw, 30, Argyll Street, Regent Street,

Of whom also may be had

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